# SUPPLEMENT.


# The Mining Journal,

## RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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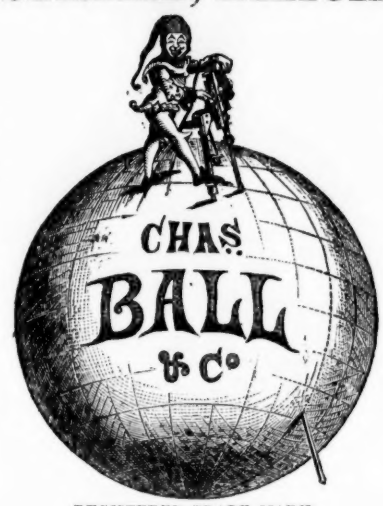


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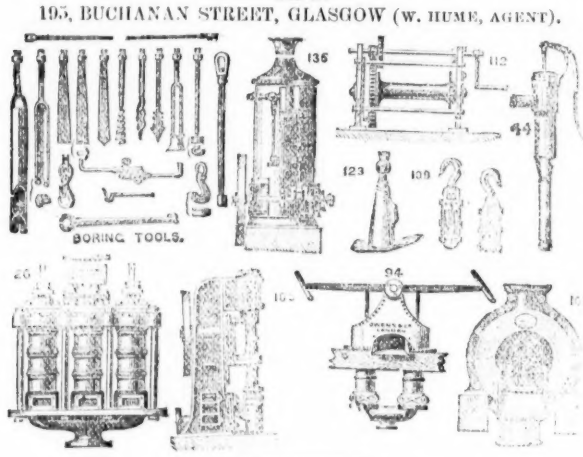


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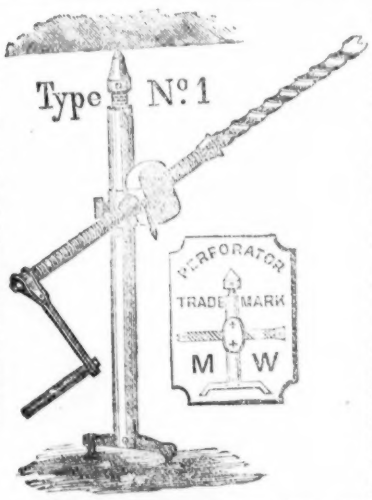


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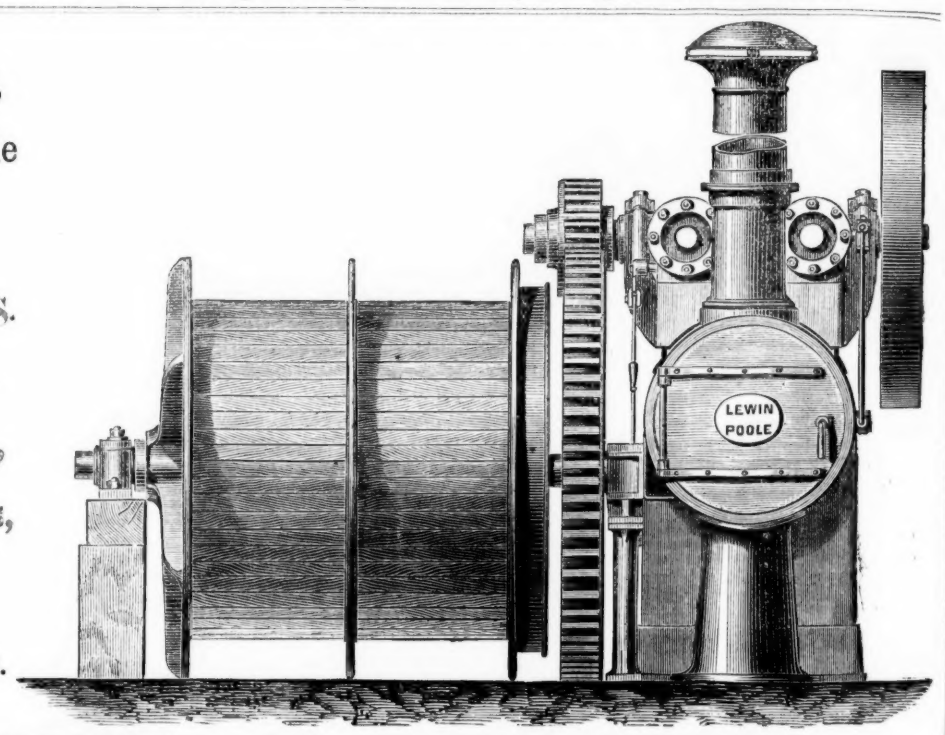


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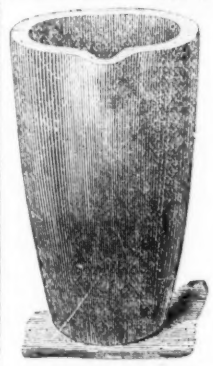

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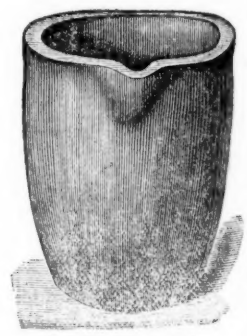

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DRAWINGS AND ESTIMATES ON A PLICATION

# Original Correspondence.

## TIN IN PORTUGAL.

REPORT ON THE TIN MINES OF SAO MARTINHO AND MONTESINHOS, IN THE PROVINCE OF FRAS OS MONTES.

SIR,—These rich deposits of first-class tin ore are situate in two Portuguese frontier villages—one, Sao Martinho, five miles distant from the Spanish custom-house town of Alcanices, in the province of Zamora, and about 31 miles south-west from the city of Braganza; the other, Montesinhos, is about 44 miles from the from the former, 12½ from Braganza, adjoining the Spanish frontier custom-house town of Calator, and not far from the military post of La Puebla de Senabria. The San Martinho property comprises 3494 acres, and occupies the whole valley within the village of the Angueira river, and is composed of the following concessions:—

| | | | | |
|---|---|---|---|---|
| 1. An absolute concession, | called the | Codeço or Codeso, | containing | 321 acres. |
| 2. Ditto | ditto | Rapoco or Raposo | ,, | 504 ,, |
| 3. A provisional concession | | Sao Martinho | ,, | 1265 ,, |
| 4. Ditto | ditto | Raia | ,, | 1404 ,, |
| Total | | | | 3494 acres. |

The provisional concessions 3 and 4 are alluvium, and are situate on the banks of the Angueira. They are not expected to equal the others in value of ore, but being situated between them, and consolidating them into one entire and self-contained property, besides giving the service of the water, and keeping off inconvenient neighbours at a cheap rate, are considered desirable to be retained and converted into definitive concessions, all the necessary preliminaries for the purpose having been completed.

The Montesinhos concessions are two, containing 326 acres:—

| | | |
|---|---|---|
| 1. An absolute one, called La Cheira da Cruz | containing | 153 acres. |
| 2. A provisional one, but which will be shortly converted into a definitive one, all costs and preliminaries having been defrayed... | | 173 ,, |
| Total | | 326 acres. |

The total of the concessions, therefore, amounts to 1546 hectares, or 3820 acres. All the mines have been chiefly worked upon the lodes cropping up to the surface, by means of trenches or gutters from 1 to 13 yards deep. There are, besides, on the Codeso and Raposo eight shafts each; those of the Codeso amounting to a total of 127 fms., with an average depth of 17 fms., one being a winze of 9 fms., the greatest depth, including the winze, being, therefore, about 27 fms. The total length of levels is 232½ fms. On the area that has been worked of 550 by 765 yards at least 40 clearly defined lodes have been met with, divisible into three groups, the centre of 20, the north and south of 12 and 8 each, the lodes being from 2½ to 4 yards apart, and each group separated from the adjoining ones by spaces of 33 and 44 yards barren in lodes. The inclination of the lodes is vertical, or nearly so, consisting of quartz, more or less compact and cleavable, containing the ore in crystals more or less agglomerated. The "country" is mica schist, with occasional bands of very hard compact schist. The cost at the levels and shafts has been about 20s. the metre (or 40 inches) run on a face of about 3 square metres.

The shafts on the Raposo reach a total of 55 fms., one of which is a winze of 9 fms., the greatest depth, including the winze, being about 17 fms. The total length of drifts and levels is about 343 fms., of which three, called respectively the Conde of 79½ fms., the Enrique 93 fms., and the Erneste 53 fms. (together 226 fms.), crossing 48 lodes, are continuous, and commencing at the surface on one side of a hill conclude at the surface on another portion of it. The lodes are from 1 to 5½ fathoms apart, and vertical, or almost so. The "country" here is variable, from friable and decomposed schist, requiring timber (which is cheap), to very hard compact schist, occasioning the lodes to vary in direction. The average of underground work is here estimated to cost from 14s. 6d. to 16s. the metre run, with timber 4s. the metre run extra. The contents of the lodes on these two are stated to be from 43 to 85 lbs. of ore to the square yard of lode. For these concessions, doubtless, the machinery and intelligence employed in well-appointed works would largely develope their productiveness.

The Montesinhos Mines were not, from press of time, visited by me. They appear from the papers before me, which I have no reason to doubt, to be susceptible of a more economical working than the others. The lodes observed are about 80, many of them stanniferous. They lie more contiguous to the granite than the Martinho Mines. The "country" is transition schist, the gangue, or substance of the lode, quartz, often accompanied with mica. The inclination of the lodes is generally between 60° to 70° S.W. Lodes are, however, met with in the hornblende schist, inclining N.W., containing very little quartz. There is an adit level of about 55 fms., with cuttings, several vertical and inclined shafts for examining and following the lodes, some of which form an upper level. The lodes are stated to produce from 55 to 74 lbs. the square yard. The cost of the works underground have been about 24s. the metre (or 40 inches) run. It is said that a shaft of 77 fms. would enable an adit level to reach the centre of the concession at 655 fms. distance. Thus recourse to machines would not be necessary.

The ore from the Codeso and Raposo is remarkably good. It may be called on the average 60 per cent. ore. No assays have been taken at the mine by the proprietors, but two made in May, 1872, by a Cornish gentleman, were stated by him to have produced 73¾ per cent. of metal, and he added that if it were washed in the same manner as in Cornwall it would have returned up to 80 per cent. A parcel was sent by the company to London from the Codeso and Raposo, and the result is given as follows:—Tin, 99·66; sulphur, ·02; iron, ·01; lead, ·01: total 100.

The ore from the Montesinhos Mines is not so pure, containing frequently wolfram, some mispickel, and sometimes arsenic. The cost of ore from the surface cuttings or trenches was, on the average, 24*l.* 6s. per ton for getting, washing, other workmanship, and smelting; from the shafts and levels it had amounted to as much as 44*l.* the ton, smelting alone; for charcoal and workmanship, cost 4*l.* 13s. 6d.

Fuel will not for a long period be a question of moment, as on the site of all the mines are immense tracts covered with heath, the roots of which form a strong and most abundant combustible. But the completion of the Leon and Oviedo Railway, parts of which are at work, will bring the Asturian coal fields within easy reach.—1. The charges are a royalty of 80 reis, or 4½d. per 48,400 square metres, or 12 acres English, amounting to 5*l.* 3s. 2d. for the San Martinho concessions, and 9s. 10d. for the Montesinhos concessions, making 5*l.* 13s. for the whole 3822 acres.—2. An *ad valorem* charge of 3 per cent. on the produce. These charges are payable to the Government.

At San Martinho is a manager's residence and foundry, valued at 680*l.*; at Raposo a foreman's residence, valued at 120*l.*; at Montesinhos, a manager's and a foreman's residence, valued at 400*l.*: total, 1200*l.* Under the companies' statutes there is an obligation to make some pine plantations. Likewise to improve the village communication, about 2½ miles (beneficial for the mines), to the proposed Government main trunk road, from Braganza to Alcanices, from which place a Spanish arterial communication has been completed with the rest of Spain. The tin has hitherto been carried to Oporto along country roads, *via* Braganza, and cost 6*l.* per ton. The Government road between those two places having been completed, the cost will probably be less. Railway communication now in course of construction may do still more in this respect, and if an arrangement could be made to avoid payment of customs duty on entry into Spain on transit, by bond or otherwise, Santander would at present be the cheapest port, and the fares according to present rates would be:—From the mines to Zamora, in carts, 42 miles, 1*l.* 10s.; Zamora to Santander, railway, 145 miles, 1*l.* 10s. 2½d.; to which total a freight of 15s. to England should be added, making a total of 3*l.* 0s. 2½d.

By the statement accompanying this epitome, and which is drawn up more in detail for the convenience of the gentlemen who may be deputed to inspect the mines, it will be seen that the mines have not been worked upon a scale or system to evolve a regular commercial undertaking. They belong to a society of gentlemen of Paris and Lisbon, established as an exploratory one, and who, believing that they have done all that is necessary to the object, now wish to turn the mines over to a commercial undertaking, having spent about 16,000*l.* They are, therefore, desirous that an English company should assume the mines. In this company the proprietors would be willing to take a substantial share, or they would sell their interest in it absolutely, as may be preferred. JOSH. HEALE.

*Santander, March 8.*

## MINING IN QUEENSLAND.

SIR,—Since my last an extraordinary change has taken place in our mining matters. Tin and copper mining is becoming neglected, and gold is again in the ascendant. During the month of December the stream tin received at the Warwick Railway Station was 479 tons 2 cwts. 0 qr. 13 lbs., a considerable decline on the previous month's receipts. Heavy rain fell during the last week in December and since, causing floods, and much damage has accrued; the consequence is that all works on the tin fields are stopped, and only 60 tons of tin ore were received at the Warwick Terminus during the first two weeks in this month, connection by the road to Grafton and Sydney being completely stopped. About 200 of the tin miners have left for the newly-discovered Palmer gold fields, and several hundred will follow during the present month, a few Chinamen taking their place. About 5000 acres of leased tin land has been declared forfeited by the Government, and as much more has been abandoned by the lessees as too poor to work. A considerable falling off in the production of stream tin may, therefore, be safely calculated upon for some months at least. The past year's production I give below.

In copper mining there is very little doing; most of the mines have "knocked," owing to mismanagement, and for want of capital. The "company" mining mania has died out, and now no one in Queensland will invest in a "company's" scrip, no matter the prospect.

In gold the Palmer is the rage, diggers from all quarters are flocking to "Cook's Town," Endeavour River, so as to be ready to start for the Palmer immediately the rainy season is over, and the country fit to travel on; this, it is expected, will be about the third week in March, and by that time there will be an accumulation of at least 10,000 diggers at Cook's Town. The accounts already received from returned diggers and official sources are most encouraging, and the general feeling here is that we have discovered a second "Ballarat" of greater extent. As yet the country is not prospected, but the Palmer bed has been proved payable for 45 miles of its course. The 16,000 ozs. of gold brought down is very pure, nuggety, and well water-worn. As is usual in such cases, most of our gold fields are getting deserted, many of the working men are leaving Gympie for the North, although the prospects of that field never were better. As an instance, the half-yearly report and balance-sheet of the Glenmure and Monkland Company states that the proceeds of gold from crushings for the past half-year was 11,179*l.* 8s. 11d.; wages and all expenses, 3836*l.* 0s. 11d.; dividends paid, 6000*l.*; cash in hand, 582*l.*; dividend equal to 15 per cent. per annum on the 8000*l.* nominal capital of the company. Since this company commenced operations in November, 1872, there has been 1931 tons quartz raised, yielding 9746 ozs. gold, value 34,527*l.*, of this amount 26,000*l.* has been paid in dividends, amounting to 6s. 7½d. in 14 months. The works are 2½ years in advance with its dead work—*i.e.*, it will take 2½ years to work out the quartz to the depth and width at present prospected. I only mention this as one instance of a payable Queensland gold company.

QUEENSLAND—EXPORTS OF TIN FOR 1873.

STREAM TIN.

| 1873. | Destination. | Weight—Total. cwts. | cwts. | Value—Total. £. | £. | Average value per cwt. f.o.b. |
|---|---|---|---|---|---|---|
| 1st quarter | N. S. Wales, Sydney* ... | 18,042 | | 71,912 | | |
| | Great Britain, London... | 6,269 = | 24,311 | 23,656 = | 95,577 | 78s. 3d. |
| 2nd quarter | N. S. Wales, Sydney* ... | 16,218 | | 64,434 | | |
| | Great Britain, London... | 2,306 = | 18,524 | 8,577 = | 73,011 | 79s. 8d. |
| 3rd quarter | N. S. Wales, Sydney* ... | 13,444 | | 47,938 | | |
| | Victoria, Melbourne ..... | 420 | | 1,680 | | |
| | Great Britain, London... | 11,075 = | 21,939 | 41,522 = | 91,140 | 73s. 1d. |
| 4th quarter | N. S. Wales, Sydney* ... | 21,403 | | 77,515 | | |
| | Great Britain, London... | 9,091 = | 30,494 | 33,469 = | 110,984 | 72s. 9d. |
| Total | ore ..... | | 98,268 | ..... | 370,712 | |

INGOTS.

| | | | | | |
|---|---|---|---|---|---|
| 1st quarter | N. S. Wales, Sydney* ... | 31 | | 115 | |
| | Great Britain, London... | 284 = | 315 | 1,410 = | 1,555 |
| 2nd quarter | N. S. Wales, Sydney* ... | 9 | | 55 | |
| | Great Britain, London... | 608 = | 617 | 3,194 = | 3,249 |
| 3rd quarter | N. S. Wales, Sydney* ... | 20 | | 132 | |
| | Great Britain, London... | 1,568 = | 1,588 | 8,878 = | 9,010 |
| 4th quarter | N. S. Wales, Sydney..... | — | | — | |
| | Great Britain, London... | 2,094 = | 2,094 | 12,320 = | 12,320 |
| Total | ingots ..... | | 4,614 | ..... | 26,134 |
| Total | value ..... | | | | 396,846 |

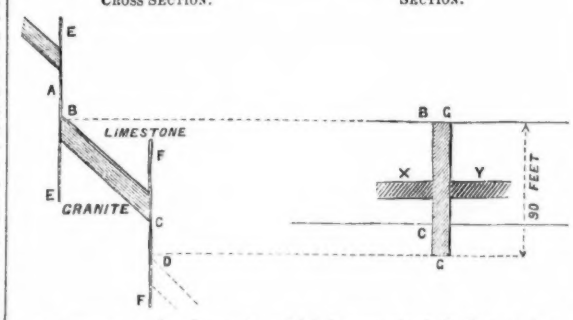
* These quantities will appear again in New South Wales exports.

Total tin ore 98,268 cwt., at an average of (say) 60 = 58,960 cwt. pure tin, which, together with the 4614 cwt. ingots exported = 63,574 cwt., or 3178 tons 14 cwt., exported during 1873. A quantity far below all the estimates heretofore made. I have not been able to get the New South Wales exports of tin for the year, but hope to be able to procure them by next mail. We can then see the gross export of tin from Australia for the year, which I am certain will not exceed 4000 tons pure tin. I have given each quarter's returns separately, so that your readers can see the actual increase or decrease that has taken place. RESIDENT.

*Brisbane, Jan. 21.*

## THE EMMA MINE.

SIR,—The latest information from the mine is very satisfactory, and explains clearly our position and prospects.




E E, narrow vein of quartz, which heaves the lode from A to B, a distance of only 30 feet. From B to C we have the lode again for 90 feet in height and 13 ft. wide, through which the shaft, G G, has been sunk in ore, proving that we have 90 ft. in height of rich ore; X and Y levels, which have been driven about 100 feet on each side of the shaft, proving that the metal is extending horizontally, and the ends of which are producing ores, and that we have a valuable discovery, and as the levels are driven forward we shall have plenty of ground to stope, and the production can be increased. At C the lode has been heaved again, and we shall find it again after sinking another 30 feet to D. The heaves are no doubt caused by the change or transition through which we are passing from limestone to granite (quartzite or porphyry?) As the heave has produced ore in the first instance, we have every reason to expect the same cause will again produce the same effect, on finding the lode after the second heave. At present we are at G, sinking to find the lode again, and of course have no ore whilst sinking on the heave, so, commercially, the bottom of the mine is of no value, but we may hear at any moment of the discovery of the lode again in ore. It can only be supposed that the manager and the directors are frightened by the heaves, or pretend to be so, as in their first circular they stated the mines had been paying expenses, and no doubt they are doing better still on the present production, paying for the engine and the 100 men employed. We are getting good returns now, and after passing through the limestone we may expect a steadier and more productive lode, since the first contact with the new stratum is favourable. The ores are sold at Salt Lake City, so there is no difficulty in getting at the actual production, or getting information on that point.

H. NASMYTH.

## THE EMMA MINE.

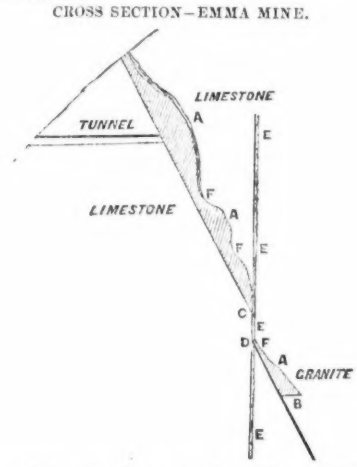
SIR,—The circular published by the directors of the Emma Mine is as much to be depended on as the wonderful reports and gigantic amount of reserves with which this mine was paraded into the London market. What dependence, then, I ask, can be placed in them when they run into the other extreme? The Chairman came out here, after the first collapse, and reported likewise great reserves—$4,000,000 in sight. What dependence can also be placed in him? I am as liberal as anyone, having never accused any of these gentlemen at any time of wilful deception. I do not do so either on the present occasion; but I do state, from positive facts, that they are either as ill-advised on the present state of the mine as formerly, or they are withholding most valuable information.

If the mine promises so little as the Chairman himself believes, or is made to believe, why is nobody admitted, no exception made, not even to any shareholders here resident (nearly 300 shares are held in this city)? Why not allow himself to be assisted in concocting his gloomy circulars by the admittance into the mine of those interested here? To say the least, this would have been a feather in his cap. Why has not the Chairman entered more fully into explanations of the causes of his gloomy circular? Why does he avoid giving information which every shareholder has a right to demand? Why has he not made public the sales made in Salt Lake City, which now average about 700 tons, at from $1000 to $145 per ton? Why has he not given a statement of the reserves amounting to 3400 tons? Why has he not given a diagram to show the *temporary* cause of the ore disappearing suddenly again as on the first occasions, and then discovered again within 30 ft., which caused the present discovery, which was made in November, 1873?

Is it not the duty of a board to make public a discovery of ore, however small? Have they at any time given any of this information? The public here is as well informed of the present satisfactory state of the mine as it was when it objected to believe in the $4,000,000 reserves, which were then trumpeted about by the board, in proportion as they are now cried down. The causes of the temporary and sudden disappearance of the ore are simply faults that are met with in all rich mines.

I will here give you a small diagram which will illustrate the real state of matters:—

CROSS SECTION—EMMA MINE.




A, A, A, Emma lode; the shaded portion at the end of the "Tunnel" is the great body of ore above the adit; C, is the first fault met with, cutting off the ore completely; E, perpendicular fault, 30 ft. high; D to B, vein discovered again below the first fault in November, 1873, from which the rich ore sold lately was produced.

The length of ore, horizontally speaking, between the two faults is 110 ft.; the length on the incline, 138 ft.; and the average width about 3 ft. (the ore varies in width from 14 ft. to an inch or two). Allowing as much as 14 cubic feet to the ton, we have 3400 tons more or less as reserves. This calculation was made on reliable data by one of our most practical mining engineers, and formerly superintendent of the mine during two years.

The weekly remittance of the ore during the worst time of the year is the best proof that the mine has these reserves, and will continue to produce ore for several months, at any rate until the new fault has been gone through. Three of these faults have already been gone through in the Flagstaff Mine, and fresh bodies of ore discovered each time, but with the difference that the ore in the Emma is wonderfully rich. FAIR PLAY.

*Salt Lake City, March 5.*

P.S.—Why should not levels be driven between the two faults in search of other bodies of ore? The mine is 2400 ft. in length. Why should the ore be confined to only 110 ft. horizontal?

Shareholders desirous of obtaining reliable information concerning the future of the Emma Mine can call at the office of the Devonport Mine in London, and see for themselves the opinion of one of our most trustworthy and reliable mining engineers, embodied in his report on the above mine, alluding in rather impressive language to the future of the Emma.

## THE EMMA MINE.

SIR,—I fear that the game now playing by some knowing ones will result in credulous people losing money. Some months ago I warned your readers against speculating in Utah mines, on the ground that it was pure gambling and was not honest mining. "A Shareholder—not a Parson," but presumably a shareholder in the Flagstaff Mine, took exception to my remarks, and at my presumption in saying that the shares of the latter were selling too high; nevertheless, in a few weeks afterwards I am sorry to say the result verified my remarks, for they came tumbling down. I now beg leave again to warn your readers how they touch the Emma shares. I am satisfied, from a thorough examination of all the circumstances, that even if a deposit similar to the one worked out was got the mine would not be worth 2*l.* a share—which means 100,000*l.* I am glad to see the directors discountenancing the movement, which can only have one end.

A MINING ENGINEER.

## ON COALS IN ENGLAND.

SIR,—During my mining career I have surveyed many coal mines, I never was enamoured of them: I saw the danger from explosions, and the quantity that had to be removed for the money. From what I saw of coals generally I concluded that they were a surer speculation than metallic mines, but the profit on them comes in, very slowly. Iron smelting pays better than coal mining; in fact the profit on iron supports the collieries in many places. I may say that millions of tons of poor coals lie about that would sell at no price. Then came the quarrel between the masters and men, which was followed by the strike. The masters then gave the men an extra 1s. per ton, and raised the coal and iron 10s. per ton, and from so doing the masters got up coals to over 1*l.* per ton, and iron to 2*l.* or 3*l.* per ton. This strike of the men put millions of money into the pockets of the owners, and they then sold off all the bad coals that had lain by for years. From these rises the coal and ironstone miners made money faster than any other branch of trade ever did in England before. They, as a matter of course, put on all the men they could get to raise the coals at such a price: every coal miner was employed. After these strikes they could not get them to work more than half time; they raised not more than half the quantity they had previously done. Everything black was then sent off as coals. The same number of men will never raise the same quantity of coals in the same time as they formerly did, with all the rubbish they put in. I know the coal miner well: he must be kept working, or eating, drinking, and sleeping. He now has half his time on hand; what has he to do with it but drink and smoke his pipe? Then, he gets about the same money he did before, but the time he has on hand causes him to drink a deal more than he did formerly, and the shop and store keepers are worse off than before, and the

man and family no better. It was a mistake of the masters in not raising their wages, and keeping them at work full time as before. It is now very doubtful that they will be got to work as formerly. Then the coalowners will have to pay a deal more to get the same quantity of coal, and for every extra shilling they have to pay the men the public will be charged 10s.

Then comes another serious point I may call your attention to. Everyone who has money at command is now aware of the large sums these coalowners have pocketed by the rise in the price of coals, and they think they can open up new coal mines, and do the same. This is not the case. Nearly all the collieries left unworked are doubtful speculations. Still they will be opened; thousands of men with money may be said to be "coal mad." Every coal field is now raked up, put into the market, and sold for fabulous prices—say, from 20,000*l.* to 60,000*l.*—by men who never saw coals but by burning them. It matters little to them if there is not 1 ton of coal in their grants if they can get someone to concoct a report and sell them. One came to me, not a week since, with his report "cut and dried." He said he had it taken up in London. He only wanted one-fourth taken up, as it was a most splendid coal and ironstone field. I asked him where it was, and he told me. I said that coal was not found in that district; what rock was it in? He said the chalk. That I said was quite new to me, and let him go on. I have a friend who, I am sure, never knew anything of coal layers, or how to mine them. He met with someone who had a coal grant, and agreed to share it with him. They started off together. About a week since they returned. He says he has sold it for 30,000*l.*, has the agreement signed, and has received a portion of the money.

It is clear to me that hundreds of worthless coal grants will be sold, and many of them opened up; still I fear that few of them will ever pay. They may raise a deal of coals. Then the question arises, will the public get coals at a lower price? I say not, as the collier is only employed half his time, and that is all he will be got to work in future. Then, thousands of the most skilled men will be taken from the present collieries to sink and open new ones, and the coalowner will have to pay a vast deal more for raising the same quantity of coals than he does at present. Then, who is to pay for this, the coalowner or the public? I fear it will fall upon the public. In that case it will drive the trade out of the English market: if we import coals it will amount to the same thing. We cannot compete with any country that has good coals and pays low wages. Be this as it may, I caution all those about to open new coal mines to be on their guard, or they will lose their cash.

Devon Consols Copper Mine paid the shareholders 1,250,000*l.*, but others, in searching for a second such mine, spent over 2,000,000*l.*, and got nothing. I fear this will be the case with some of the new coal finders.—*St. Teath, Camelford, Cornwall.* N. ENNOR.

## SILKSTONE FALL COLLIERY MEETING.

SIR,—I understand that the proxies many of my friends and myself gave to the Chairman for the meeting of the Silkstone Fall Colliery Company (Limited), at Barnsley on Friday last, were not used in support of the election of Mr. Kimber, who was proposed by Mr. Swindells, one of the oldest, wealthiest, and most respectable of the proprietors. I am very much surprised at this, because Mr. Kimber was on the committee of investigation, whose labours have had such a successful result. However, he was fortunately elected without the assistance of those proxies, and I trust now our property will become still more valuable. It only shows, however, that in giving proxies some more definite instructions should be given to the person who holds them. I simply throw this out as a hint to all shareholders not to give proxies blindfold, just because a Chairman or other official should ask for them. A CITY MERCHANT.

## THE CHONTALES CONSOLIDATED MINING COMPANY.

SIR,—The Chontales Consolidated Mining Company have now made regular profits for the last eight months, from 190*l.* to 750*l.* per month, with 24-stamp heads, under the able management of Mr. Smeddle, the manager at the mines; and they have erected additional twelve ones, which will increase the same from 1000*l.* to 1500*l.*, according to the yield of gold per ton of ore. With such prospects as these it seems a wonder to me that shareholders who may have watched the progress of the mine for some time past do not increase their holding, or that capitalists are not induced to procure shares, which at the present advantageous price (¾ to 1) would no doubt pay a very good percentage on the sum invested in the course of a few months. I am happy to say that many of my friends have purchased largely in the mine, and anyone doing the same would do well. I may add that now is the favourable opportunity for investing therein, as we may expect forthwith the results of the 36 heads. To quote the words of our late manager, Mr. Belt, who was present at the half-yearly meeting of shareholders on Oct. 31, 1872, there are millions of tons of payable ore in the mines, and if 84 extra stamp heads were erected at the Pavon (where there is good water-power), making, with those in other parts of the property, 120 in all, a sufficient number of tons (120,000) could be reduced, to produce, at an average of 4 dwts. a ton, 24,000 ozs. of gold per annum, which, at 55*s.* an ounce, would realise the enormous return of 66,000*l.*, and this sum, after deducting the working expenses, which I estimate at 31,500*l.*, being at 5*s.* 3*d.* a ton, would pay a dividend to the shareholders approaching that of the celebrated St. John del Rey at the time of its former prosperity.

*Bristol, March* 23. A SHAREHOLDER.

## MINERS' PAY—THE THIRTEEN-MONTHS SYSTEM.

SIR,—"Readers of the 'Mining Journal,'" in the Supplement to last week's Journal, says, speaking of the 13 months, "We believe this absurd system will disappear, and believe it was instituted only for the convenience of packmen." I ask "Readers of the 'Mining Journal'" to define "absurd." Methinks I hear them say preposterous, unreasonable. I ask the Cornish miners the meaning of the word in this case, and I hear the answer reverberating and re-echoing from Land's End to Tintagel—It is the greatest blessing ever conferred on us; it has elevated us almost to equality with other labouring classes; it has, moreover, clothed our childrens' shoeless feet, it has erased our names from the County Courts, &c. Now, to whom shall we award the palm of credulity? To that race of whom Prof. Sewell wrote only a few weeks since in your valuable Journal, "were unsurpassed, if not unequalled," or an equivalent; or to the "Readers of the 'Mining Journal?'" who would lock the gates of progress, and again deluge the world with gross ignorance and superstition, and who look at everything with jaundiced glasses. "Convenience of packmen!" Every shareholder can refute that assertion, as packmen have no more interest or influence in our mine meetings than you "Readers" have. For the future, do not write on anything you are unacquainted with.

"Auditor" is "pleased" at the downfall of weak and falling humanity, "pleased" to be able to communicate that which is a source of distress, misery, poverty, and other concomitant and necessary evils; "pleased" to inform you that as a county we have retrograded. Certainly he is entitled to a "niche in the Pantheon." If ever truth was coloured, or there were misrepresentations in a public paper, it is in "Auditor's" letters. I state fearlessly that he cannot reckon three mines in the whole county where the men have returned to the old system without opposition, and in some mines the men prefer a holiday than work under the five-weeks system. The rest of the letter will be treated as it deserves by every man of truth and honour by passing over it in silence.

"Unity" shows he is a tyro in mining when he says "he believes nothing has done more to damage mining investments than this 13-months system." What about inspectors' reports, committees and directors' salaries and privileges, as was ably shown by Mr. N. Ennor, in his letter on "Depressed Mining," in the Supplement to last week's Journal; useless and worthless machinery, unqualified and extravagant agents, and the exorbitant expenditure connected with our account-houses. Again, "a miner does less work." Our agents are appointed to see that men work, and that men are paid only for the work accomplished. What will our agents say when told by "Unity" that they have not discharged their duty? A baseless assertion which could only exist in a chimera.

I ask through the medium of the Journal for arguments in favour of the five-weeks system, as only one has been forthcoming,—namely, "the difficulty in balancing the accounts." To remedy this, if the purser or clerk should call in the services of some qualified parties who are generally to be found on the mine it would be done gratuitously, as very many of our miners can do mathematics. I hope the parties to whom I have replied will pardon me, but they know not one tithe of the misery entailed by the re-introduction of the hated and detested five-weeks.—*Cumborne, March* 24. TROON INSTITUTE.

## MINERS' PAY—THE THIRTEEN-MONTHS SYSTEM.

SIR,—We are now to believe that whoever are true lovers of mining must needs be pleased at the very interesting endeavours which are made towards the restoration of the five-weeks pays, and by which mining is to be raised from the languishing condition it is now in. But is it not odd that with all that these great pillars of mining have had to say on the subject they have neither brought forth facts or figures to show wherein the four-weeks system fails to act. Certainly they have been looking high and low, right and left, and in every other direction for some new order of excitement to be set going, and upon which they might build their premises—not, it is to be hoped, that they are bad enough to wish the condition of the miner to be less favourable for his picking his way through life than other men of a like class. But this much we may say emphatically, that there is every reason to believe that they cannot know much of the inconvenience of long pays to the working class, and as none can know better what belongs to such a life, we can state the result of our experience to be that wages, even the smallest, went further when received at such intervals as to enable us to buy with ready money.

Just to show what we mean, we will suppose the twelve-months system restored, and the pays on the last Saturday in each month; these are between July 25 next and Oct. 31 (fourteen weeks). Say, now, that a set of good tributers have been vainly trying their luck up to the first of the above dates; they then wish to try a spell of tutwork, so as to recover themselves a little. But, oh! what a prospect, with nine weeks before getting a farthing, and another five weeks close at their heels. And was this all it would be bad enough, but not having any wish to overcolour the thing, let us hope that this hint may suffice to convince those who appear so anxious about this affair that they are now trying that on which will have a tendency to deprive mining of many of its best workmen. A READER.

*North Wales, March* 25.

## EAST SETON.

SIR,—It is a pity that this promising mine is not worked with more spirit. A decisive trial would be to drive the 80 from Emily Henrietta to come in 10 fms. below Cartwright's shaft. The water from Seton was dammed out last year, and the North Roskear will probably find its way north-west to the Seton's and south-east to the Crofty's. Little is being done now but taking away the ore discovered last year, of which there must be at least 400 tons, perhaps more. Let us hope the mine will be worked at once with greater spirit. SHAREHOLDER.

[For remainder of Original Correspondence, see to-day's Journal.]

## SETTING TO WORK AN ENGINE AT MORVAH CONSOLS.

"Setting to work an engine, in such times as these!" exclaim some of the wearied or fainthearted ones who have seen mining droop and languish within the last few months. Shareholders in mines which have ceased to yield them the income on which they had reckoned as surely as if it was derived from lands or consols; or, worse, having withdrawn from them some of their resources, have become claimants on attenuated purses, may reasonably ejaculate thus. They see old (and expensive) mines death-stricken by the fierce Australian competition. They hear of tin bals which possess rich bunches of mineral preparing to abandon the less productive parts of the 'venture, and trust to the cautious and economic working of the wealthier deposits. They know that a panic prevails; that adventurers in mines, no more proof against unreasoning fright than bank depositors in commercial whirlwinds, are sacrificing their property; that shares are in the market at less than the value of materials; and, therefore, they are surprised that cool and resolute men steadily follow up their determination to give a promising piece of mineralised property a fair trial. On the other hand, why should they not be so started? The clearest of sight and shrewdest of brain amongst us say that let more adverse changes take place within the next few months, whatever their extent and significance, yet they are preparing for future operations. The undaunted boast that Cornwall has a strong backbone; that, spite of Sir Stamford Raffles' dark prognostic that the East would throw the old county, the mother of wrestlers has held her own against Banca's wealthy resources; and that she will successfully compete with her colonial daughter. But what are the practical and experienced capitalists about? Not only do they calmly withstand the shock, but they are adding to their mining property. Those who know the most of the actual present and the probable future of the Australian tin fields, and of the prospects of the trade in that material, speak confidently of higher prices for it. It follows then that mines which can survive these dull times, and young and inexpensive enterprises—working at shallow depths at a small expenditure for coals and iron—are to be the tin-producing concerns of the brighter future. Such are the changes incidental to mining, as to all other matters in commerce—such the law of growth and decay, life and death—that when some of the once richest of our subterranean hives are left to the gnomes and spriggans, and their dismantled engine-houses are the home of the bat and the owl, our younger and more vigorous speculations will be centres of energy and the storehouses of our inexhaustible wealth. These last, at any rate, are the views which animate the few but resolute proprietors of Morvah Consols, and which induced them last Friday to put an engine in motion.

We have on three or four occasions referred to Morvah Consols, both as to its mineral attributes and its romantic situation. On the verge of the granite cliffs not far from Morvah church, and in the scattered islets beneath them, three or four lodes are distinctly seen. As these penetrate the mainland they have proved to be productive of excellent tinstone, and the chances are that rich bunches of mineral exist landward and seaward. The "old men" have not failed to get out all the tin and copper they could with their rude appliances. They drove an adit into the hill from just above the reach of the sea, and sunk a shaft as far as possible beneath this level. Water dislodged them, and they had to betake themselves to equally shallow "diggings" somewhere else. Since these days mining men have ever and anon cast longing eyes on the sett, and various partially successful efforts have been made to acquire the right to explore and to form a company. About two years since Mr. Hammon, of London—a gentleman of considerable mining experience in England, Wales, and Ireland, and who has devoted much thought and energy to this enterprise—arranged with Messrs. H. and R. White, af Bojewyan, the present lords of the soil, to give Morvah Consols a thorough trial. A company was formed. For some months very little was done; but nine months since a change was made in the directorate, and it was resolved to give the sett, whatever the ups and downs of mining generally might be, a systematic and thorough trial. To effect this—to enable the miners to sink and drive, and the managers to stamp and dress the huge piles of tinstuff already on the surface—a pumping and stamping-engine became necessary. The sale of Balleswidden machinery enabled Mr. Hammon to buy a suitable engine. Under the advice of Messrs. G. Eustice and Son, engineers, of Hayle, with the aid of Messrs. Holman's foundry at St. Just, and at a cost of between 500*l.* and 600*l.* (a new cylinder having been cast) Sandys, Vivian, and Co.'s pumping and stamping engine has been made thoroughly efficient. The engine is a 24 in. cylinder, single acting one, with 9 ft. stroke. It is placed in a substantial engine house, 42 ft. high, 27 ft. long, and 18 ft. wide—substantial, or it would neither answer its first purpose of upholding massive machinery, or resist the storms which assail such an exposed situation for many months in the year. The unprotected spot, "Wild land, endowed with never-failing store," has been subjected to so much wind-driven rain in the last late autumn and early winter that no men could stick steadily to their work. Hence many weeks of delay, and why the 30 or 40 visitors of Friday were not earlier invited to join in the ceremony and rejoicings consequent on the christening of the engine. These, at any rate, did not much regret the climatic hindrances which have vexed the souls of Mr. Hammon and Capt. Thomas Bennetts, for it enabled them to bask in the pure, bracing air which swept across the wide Atlantic and enjoy the magnificent view of land and sea. The famed Gurnard's Head, its base eternally laved by the restless billows, and its curious markings and bold front clearly brought out by its setting of blue sea and bluer sky; the intermediate succession of jutting cliffs and yawning zawns, the former crowned by towering fantastic piles of rock, the latter the haunt and home of thousands of restless sea-birds; the Three Stone-Oar, surrounded by a seething tide, which every now and then whitens the dark rocks even in the mildest weather; the Scilly Islands, dimly seen

—"On the verge
Where the sky stoops to clasp the surge;"

infinite variety of form and colour—all these charms of Nature caused many an exclamation of surprise and delight. But the hurry-skurry among the miners, just come from underground in their red-stained clothes, as some of them hasten below again to see to some final "packing," warns us to turn from Nature to man's contrivances for overcoming some of her forces, active or inert. We have not very long to wait. There is an admonitory hissing of steam. The little door of the topmost story of the engine-house is opened. Mr. Hammon steps to the edge of the unfenced but substantial platform by the side of the bob—bareheaded and bottle in hand. Obedient to the hand of the engineer a valve opens. In an instant the "bob" deserves that funnily appropriate name, for it makes its first bow to this locality and audience; the bottle of wine is cracked across its iron nose; the ruddy liquor sprinkles the rising and falling beam, the shaft's mouth beneath it, and some of the up gazing spectators; and the Master of the Ceremonies, from his eyrie above, names the engine "Hammon's," and the shaft "Evans's." The pumps soon filled with water, which splashed along the launders, the stamps' wheel on the other side of the house began its revolutions, the whole of the machinery was pronounced to be working well and smoothly, and in a few hours the mine was "in fork" and visitors could walk dryshod through the adit and inspect some of the workings and lodes with little inconvenience or exertion.

Visitors were then hospitably asked to the carpenters' shop, temporarily converted into a dining-room, where an abundant and excellent collation awaited them. Walk or ride, and cliff rambles, had given every one that best of sauces, a good appetite, and full justice was done to Mrs. Bennetts' commendable catering, and to the attentions of Mr. Hammon in the chair, and Mr. Evans, his co-director, in the vice-chair. Dinner over, the Chairman asked the company to drink one toast, and then kindly to betake themselves to the cairns, the declivities, or the beaches, while all the men employed on the mine enjoyed a meal in the vacated place, in addition to the "toothful" given them on the start of the engine and the money present which the directors had voted them. (Applause.) The toast was one the mention of which acted on Englishmen, from one end of their much-loved island to the other, like an electric shock. It was that of the Queen and her illustrious family. (Applause.) He knew it would be so. Even here, on the rugged cliffs of Cornwall, where the Atlantic bounds Her Majesty's British domain, her name was received with the respect due to it. (Cheers.)

The men having been regaled and the tables cleared, the visitors re-assembled from out-door amusements to discuss a brew of punch.

The CHAIRMAN said he supposed they might now look upon Morvah Consols as an important reality, and not as the unimportant myth the neighbourhood at one time deemed it to be. (Hear.) Nine-tenths of the assemblage were practical men, and had seen for themselves the surface preparations for real and effective development and the result of their labours hitherto, though unassisted by steam-power. Whatever others supposed, from the first moment that he (Mr. Hammon) concluded arrangements with the lords he had not a misgiving but that his co-shareholders would do their part of the work, only "provided always," as the lawyers say (laughter), that honesty and energy were observed by all others concerned. As far as he knew both his brother directors and the adventurers whose interest they represented, as well as the executive of the mine, had so far exercised those qualities they had endeavoured to develope a valuable property in the best and most miner-like way; they had seen to it that in everything—labour and materials—no money had been expended without a sufficient value in exchange. (Hear.) They were determined that no man or set of men should get idle bread on Morvah Cliffs. (Applause.) Therefore, he had no misgivings as to the future or as to the great chances that profitable lodes would be found. (Applause.) Those deposits of mineral wealth were not only below their feet but, in all probability, intersected and made rich deposits landward, as well as seaward, as did all the St. Just mines situated near the ocean. But wealth thus hidden in prolific Mother Earth rarely fell to the lot of those who trusted to their luck rather than to steadily-directed enterprise. The whole history of mining warned them against confiding in chance, and encouraged them to perseverance. (Hear.) The man who goes into mining, hoping one day and fearing the next, was not the man for him, nor had such a one any business to enter on speculation, for he would only hinder it and make himself and others uncomfortable. The attributes required were—and he believed they had them in Morvah Consols—pluck, patience, cash, and energy. (Hear.) And above all and overlying all—honesty. The last quality had been shown by all employed under him. That being so he saw no reason why Morvah Consols, working in comparatively virgin ground, should not be as successful as mines similarly situated all the way to the south as far as where the Longships were well in sight. Its proprietors desired to work quietly and unostentatiously; to take care that no one was damaged by undue speculation; to work hard for an adequate return for their investments, and to show St. Just that its great mineral wealth knew no mere parish boundary, and that other mines might find an incentive to unrelaxed exertion by the success which all present would now wish to Morvah Consols. (Applause.)

The toast was heartily drank.

The VICE CHAIRMAN (Mr. Evans) proposed the health of Mr. Hammon, and referred in the kindest terms to his knowledge of mining, his straightforward conduct in connection with this enterprise, and to the confidence he so completely possessed of the whole of the shareholders. Having known Mr. Hammon for 20 years and been conversant with large speculations in mining at home and abroad, for 25 years, having also seen to-day what he had for himself, he (Mr. Evans) wondered that capitalists did not invest in home mines which they could occasionally visit and inspect, rather than in foreign ones where everything must be left to others. There were not many shareholders in Morvah Consols, but money had been, and would be, invested in it because there was so much confidence in the integrity of the gentleman whose health he now proposed. (Applause.) There was only one drawback to the pleasant proceedings of the day—that Col. Holland, the Chairman of the directors, was unable to be present. Had he been here he must have been pleased with the work already done and with the prospects of the mine. So satisfied was he (Mr. Evans) that he had resolved not to sell a share—indeed he had recently purchased several from a dissentient shareholder for within a few shillings of what he had paid for them; and was also determined to frequently have the pleasure of meeting them again. (Applause.)

The Chairman's good health was drank with hearty cheering.

In his response Mr. HAMMON said that in Penzance and west of it the right hand of fellowship had always been extended. He had endeavoured to reciprocate this, and so he found nothing but smiling faces around him. (Applause.) He trusted to enjoy the friendship and the good wishes of all for many years.

The toast of the health of Messrs. Eustice and Son was enthusiastically received—the CHAIRMAN observing that Mr. Eustice was an old friend of his, while the name of the firm and its repute spoke for themselves, and both father and son were good practical engineers. (Applause.)

Mr. EUSTICE said that he remembered 40 or 50 years ago a company being formed to work this sett; 20 years since another attempt was made by Mr. Daniel, of St. Ives; the present effort to try it thoroughly would, he trusted, be a success. (Hear.)

Mr. G. EUSTICE said better times were in store for Cornish mining, and it was pleasant to see that, when some of the great men of the county were in fear and trepidation, Londoners came boldly forward and showed their unabated confidence in the future of the county.

Mr. SNELL, one of the shareholders, proposed "The Lords of the Sett," to which Messrs. HENRY and RICHARD WHITE cordially responded.—Mr. R. QUICK, surgeon, gave the health of Mr. Evans, the vice-chairman and one of the directors, who had done so much to advance the interests of the mine and promote the pleasures of the day.—Mr. EVANS heartily acknowledged the cordial reception he had met with, and said if distant shareholders would take the trouble to look after their property Cornwall and Cornish mining would be much more popular and better appreciated.—In answer to the sentiments of "Neighbouring Mines and their Agents," Captains R. WHITE, of Levant, JAMES BENNETTS, of North Levant, and W. EDDY, formerly of Boscaswell Downs, expressed their confidence in this property and their willingness to aid it in every way in their power.—The healths of Capt. T. Bennetts, the managing agent of Movah Consols, and success to him; of the merchants (responded to by Mr. Holman); of Mr. Robert Marrack, formerly of Tregonebris, but for some time the London secretary of this mine; of Mr. Trezise, the doctor of the bal; and of Mr. De Chastelaine, a London shareholder, who humorously responded for other visitors and himself, brought a very pleasant afternoon to a close.—*Cornish Telegraph.*

## THE PRACTICAL ASSAYER.

That many persons not possessing the advantage of an acquaintance with chemical science would often find it of great utility to themselves to be enabled to make a reliable assay of a piece of ore when in out-of-the-way places, in which it is altogether impracticable to obtain the assistance of a professional assayer, cannot for a moment be doubted, and it is especially to meet these cases that "Oliver North" has written his admirable little volume* upon practical assaying. His object, as he states, is to give a concise and clear account of the best and quickest way of assaying, and he seems to have completely attained it. He remarks that most works on the subject mix up the province of the analytical chemist too much with that of the assayer, whereas the two are totally distinct; analytical chemistry presupposes, as a primary condition, that the operator should be a chemist, whereas assaying is a mere mechanical art, depending almost entirely on manipulation, so that the very first chemist of the day might easily be far inferior to a good assayer in estimating the exact value of an ore. The truthfulness of these remarks are beyond question, and it might also be mentioned that the most complicated astronomical calculations required at the Royal Observatory are found to be more rapidly and accurately performed by young men fresh from a country school than by astromers of long experience, and that in most branches of science the deepest and most systematic thinkers—the men to whom the science to which they devote themselves is most indebted for its development—are frequently but second-class manipulators. With a knowledge of these facts it is not surprising that "Oliver North" should state that some of the very best and quickest assayers he ever knew have been Chileno and Mexican youths, who could hardly write their own names, and yet their manipulation and knowledge of mixtures was, from constant practice, perfect.

That the volume may be of the greatest utility to those for whom it is intended, each metal is considered by itself, and the statement of the method of manipulation is in each case given in language which will be readily intelligible to all. For the assay of copper he chooses the Chilian precipitation process, which, he remarks, is undoubtedly most suited to the requirements of the general practical assayer, and is, at the same time, the most reliable and exact. It has often been condemned for its slowness, whereas, when well conducted, 20 or 25 assays can be made by one assayer and an assistant. It requires no heat beyond that of an ordinary kitchen-fire, and possesses the great advantage of cleanliness. He then describes a modification of this process, suited to those assayers who may not have access to a large sand-bath, or who are engaged in exploring, &c. After describing the apparatus required, by way of introduction, he says it is the same as for the preceding operation, with the exception of a *brazero*—a large iron dish, about 20 in. wide on top (rim and all), and 14 in. wide at bottom. A flat rim runs round the top, 2 in. wide. In the bottom are three or four holes, ½ in. in diameter, and the whole thing is supported on four legs, 4 in. or 5 in. high. A sack of good charcoal, a pair of small cork-armed iron tongs for the flasks, a common gridiron, with four legs, of such a size that the legs are supported on the rim of the brazier. Two halves of a brick, and a tile or two, complete the appuratus. The first thing to do is to light a charcoal fire in the brazier, and wait till it has quite burnt out to white ashes. When about half full of ash another fire is to be built on the top of it, and the brazier is always to be kept half full of ashes. They make one of the best sand-baths in the world. Having made the fire, place the gridiron on the rim, and your flask or flasks on the top of it. If the fire be too hot or the ore too hard to be attacked quickly, place a piece of thin tile under the flask, which will moderate the heat. When the ores are cleaned off from sulphur the gridiron is removed, and the assays placed round the fire, while they are one by one evaporated to dryness by means of the cork-armed tongs. An assay can be dried off much quicker by this means, and a good flask never breaks through contact with the hot embers. The gridiron must be replaced for the filtering, precipitating, &c.; the precipitating flasks can be subjected to a gentle heat, by placing a brick or a thin tile under them, according to the degree of heat required. The wires when required to be heated can be placed at one of the corners of the gridiron. Four assays can be taken in this way at the cost of about 2*d.* for fuel, and quicker than on a regular sand-bath; indeed, those Chileno assayers who have only four or five assays to do prefer the *brazero*.

From this extract the style in which the explanations are given can be readily judged of. For the assay of silver ore, he describes the methods of running them down in a crucible with a suitable flux, of treating them by scorification, and by the blow-pipe—and the same for gold ores. For the assay of tin he gives only the dry process, remarking that many wet methods by volumetric analysis have been proposed; but, as no known acid or acids will dissolve oxide of tin, they are all fallacious. The oxide may possibly be dissolved after previous fusion with potash, but this is only a clumsy expedient. For lead he recommends the School of Mines method of using an iron pot, remarking that the pots must be of the ordinary cylindrical shape, and welded solidly together, not merely brazed. They will last with care for 15 to 20 assays. The ore must be got through a 60-sieve, and, as in the case of tin ore, carefully mixed up, to secure a homogeneous sample, which very often causes great errors. For the assay of zinc he gives the method described in Percy's "Metallurgy;" and the methods of dealing with the ores of mercury, manganese, bismuth, nickel and cobalt, sulphur, arsenic, nitrate of soda, and guano are selected with equal care; whilst, by way of appendix, he reprints the articles on Copper Smelting in Chili recently published in the *Mining Journal*, together with some useful tables for determining the standard of silver alloy, and for facilitating the calculation of value in the assay of gold or silver.

The care which the author has taken to omit, as far as possible, all technical words from his book will be fully appreciated by those for whom it is written, more especially as he has not thereby lessened the accuracy of the information given—so that there is no reason to doubt it will be extensively recognised as that which it aims to be—a very useful companion for explorers and others interested in mines.

*"The Practical Assayer, containing Easy Methods for the Assay of the Principal Metals and Alloys." By OLIVER NORTH. London: Chatto and Windus.*

VENTILATING MINES.—We witnessed this week the working of a newly-invented machine for the ventilation and cooling of hot and deep mines. It is the invention of Capt. W. Williams, M.E., of San Francisco, and is worthy of notice by the mining community. It can be placed at any required depth in a mine, and the same time receive its supply of fresh air from the surface. Its principal feature is that the air is cooled by passing through the machine, furnishing fresh moist air instead of dry as is the case with most machines of this kind. No grease or oil is used about the machine, thus preserving the air in its pure state. Without going into details of construction, it may be stated that the machine is simply an elongated box, inside of which a large piston works, taking in and forcing out air at both its up and down stroke. The bottom of the box is filled with water, and the air on entering circulates about the water, and is moved down on it in such a way as to cool the air before it passes out into the mine. The power required to run the machine is very little, and the mechanism is simple. The box is of wood, as is the piston, and no lubrication is required. The smallest machine with a 6-ft. stroke will deliver 3,732,480 cubic inches of cool condensed air into the interior of the mine in one minute. In consequence of the machine swimming in water, a small amount of power will work it. The inventor is a practical mining engineer, and understands the injury to health and strength of miners resulting from hot and impure air, as well as the great economy of thorough ventilation in mines. A single-acting machine of this character has been long used in the mines in England. Mr. Williams's improvement makes it double-acting. The whole machine is of wood, with the exception of the piston-rod. The valves are made of leather and iron, and quite large. It can be attached to the pump-rod in a mine, and worked very economically. One of these machines can be seen in operation at No. 13, Drumm-street, in this city.—*Mining and Scientific Press* (San Francisco).

M. Krupp, of Essen, has bought the large iron mines near Bilbao, in Spain, in order to use the iron which is found there for the production of armour-plates, for which purpose the iron found in Germany is not adapted, so that hitherto they had to be got from Sheffield.

# Meetings of Public Companies.

## THE SILKSTONE FALL COLLIERY COMPANY (LIMITED).

### EXTRAORDINARY REVELATIONS.

The fourth half-yearly meeting of shareholders was held on Friday last at the King's Head Hotel, Barnsley. There was a large attendance, and the proceedings were most exciting, serious charges having been brought against the late managing director, and another director, who was also the salesman.

The report having been read by the secretary, the CHAIRMAN (Mr. J. W. Baker) said the report would be far from satisfactory to the shareholders, as there would be no dividend declared for the past half-year. When he accepted office, some six or seven months ago, he determined to riddle the whole concern from top to bottom, and make the shareholders fully acquainted with the actual condition of their property. He had received proxies representing 3000 shares, and some of the letters accompanying them denounced in strong terms the conduct of some of the late directors. One of the writers stated that it would be well if the shareholders in some other coal companies would cause an investigation to be made as to their true position.

Mr. Poole was about to address the meeting, when he was interrupted by Mr. R. COOPER, who said that he had only one share in the company; that was given him, so that he could speak in support of the old directors.

Mr. KIMBER (solicitor, London) said there was no use in crying over spilt milk, or entering upon litigation. The returns for the last quarter were satisfactory, and he, as well as the other shareholder, would not desire to receive a dividend if it had not been earned. At the meeting in August last the then Chairman, Mr. Owen, proposed to issue debentures to the extent of 10,000*l.*, and he was very glad that such had not been done.

Mr. WHITE said that when Mr. Owen made that proposition he remarked to him that he might as well make the concern bankrupt. Mr. Owen then resigned the Chairmanship.

The CHAIRMAN then alluded to a circular issued by Mr. Nicholson, late director and salesman, in which it was stated that the report read at the meeting was a tissue of falsehoods prepared to blind the eyes of the shareholders. As that gentleman was present he would ask him if he did not receive 560 fully-paid shares, without any consideration, excepting for bringing out the company, and whether he did not sell 170 of them at a considerable premium? He would also ask him whether the company had not paid 116*l.* for a pass for him to travel to Sheffield and London, and which he refused to give up when his connection with the company as an official terminated?

Mr. NICHOLSON said he would tell them all about the allegations in the report, which he certainly characterised in strong language, for if the report was correct he would stand disgraced in the eyes of all honest men, as well as in his own. He may have made some mistakes, but he had done his duty to the company, and done it honestly. It was stated in the balance-sheet for the first half-year of 1873 that the value of the colliery stores was 4082*l.* 12s. 9d., but it was stated in the report just read that 82*l.* 12s. 9d. might be considered their actual value at the time named. Such a statement was simply ridiculous for a colliery like the Silkstone Fall. The new directors had made no profits, although the returns for the last quarter were 10,108*l.* 4s. 8d., against 4905*l.* 8s. 10d. for the same quarter of the previous year. With that large sum there was no profit.

The CHAIRMAN: You are stating a barefaced untruth, for our want of profits has been occasioned by your losses.——Mr. NICHOLSON then went on to say that he received 560 fully-paid shares for his services in promoting the company, and which he considered he had fairly earned. He acted as the agent of Mr. Booth, who was one of the partners in the Silkstone Fall Colliery, formed the company, obtained directors, journied to London and other places, arranged with financial agents, and made himself responsible in the Court of Chancery for 15,000*l.* He had done all that without receiving anything excepting the 560 shares; he had thrown himself into the same boat with them, and took his chance the same as they did.

The CHAIRMAN said he should like to know if Mr. Nicholson had a list of the moneys he paid in connection with the forming of the company.——Mr. NICHOLSON said he undertook the sale of the coal at the commission of 3 per cent. on the pit price, out of which he paid all his expenses, with the exception of railway fare. That was not a very extravagant price, as anyone at all acquainted with the trade would admit. Had he been the grasping monster such as the report stated him to be, he would not have given up his agreement with the company, equal to 6000*l.* Certain of the shareholders formed a clique to supersede the old directors, so he declined to act any farther, and the result was shown by there being no dividend for the last half-yer. (Laughter.) The report stated that contracts had been entered into at prices considerably lower than the last price, and that the loss upon those contracts, as compared with the current prices of the day, was 13,786*l.* Now, the worst of those contracts had been entered into before he had anything to do with the colliery, whilst he obtained 2s. per ton more from the Sheffield Gas Company than the contract price.

The CHAIRMAN remarked that contracts had been entered into at 12s. per ton for coal which at the time was selling at 20s., so that there was a loss of 8s. per ton.

Mr. L. COOPER said there had been two dividends paid—one of 25 per cent.—that ought not to have been paid, for they had not been earned.

Mr. WHITEHEAD said that in the last week of June he met Mr. Nicholson at the colliery, who told him in confidence that there had been a loss in the working of the colliery during the previous month. Now, as there had been a loss on the wagon works and a loss on the colliery, he should like to know how it was the old directors declared a dividend of 25 per cent. in February last?

The CHAIRMAN said that Mr. Owen, the late chairman, received 60 fully paid-up shares in the company, whilst several had also been given to another director, Mr. Neville.——Mr. NEVILLE said Mr. Booth, the vendor of the colliery, gave him 20 paid-up shares.——The CHAIRMAN said there was also a preference with regard to other 20 shares.

Mr. COOPER remarked that the 40 shares were given to qualify Mr. Neville to become a director.

After a desultory discussion with regard to the price obtained for the coal, some of the shareholders alleging that Mr. Neville got a considerable quantity of coal for the colliery at a less cost than was paid by other customers, Mr. COOPER moved the adoption of the report, which was seconded by Mr. ROBINSON, and unanimously agreed to.

On the motion of the CHAIRMAN, seconded by Mr. COOPER, it was agreed that the board of directors should consist of five qualified shareholders.

The CHAIRMAN then proposed that the office of managing director, hitherto held by Mr. Booth, should be abolished.

The motion was seconded by Mr. HARWOOD, and agreed to.

The CHAIRMAN then moved, and Mr. HARWOOD seconded, a resolution to the effect that Mr. Booth and Mr. Neville be removed from the board of directors, which was agreed to.

The CHAIRMAN said the shareholders had now to elect two directors in the place of Mr. Culpin and Mr. Tattersfield, who retire according to the Articles of the company. Mr. Culpin offered himself for re-election. Mr. Culpin was accordingly re-elected. Mr. Kimber, of London, Mr. Smith, and Mr. Harwood were proposed for the other directorship. No decision, however, was come to in consequence of Mr. Kimber handing in some proxies su ficient to secure his election, but the legality of which was questioned. The question was left to the decision of the London legal adviser of the company. The meeting was then made special.

The CHAIRMAN called attention to the opinion given by Mr. W. Nicholson, barrister-at-law, the first chairman of the company, who stated that he left the board chiefly upon the ground that he considered Mr. Booth—the vendor of the colliery in the first instance—had improperly obtained his 2400 fully paid-up shares in the company. In the original prospectus it was stated that the managing partner (Mr. Booth) would take his interest, 12,000*l.*, in shares; but if he was not a partner he had no interest to sell. This appeared to be the case, for the coal leases were made from Mr. Stanhope, the lessor, to Messrs. Adsheads, who appeared to have been the owners of the colliery. In the second prospectus Mr. Booth was stated to be the vendor merely. The Chairman then proceeded to say he had received a letter from Mr. Booth's solicitor, which stated that in the report there were statements seriously reflecting on the character of his client, who was prepared to give satisfactory answers to all the charges preferred against him; and unless those statements were promptly withdrawn, after time had been given for enquiry, legal proceedings would be taken against the company. The Chairman then proceeded to say that he would take the letter for what it was worth, but he should like to ask Mr. Booth whether he had a duplicate of the leases from Mr. Stanhope to the Adsheads.——Mr. BOOTH said he had not.

Mr. KIMBER said the company had not the most remote chance of receiving the 2400 shares.

The CHAIRMAN stated that it would be for the solicitors of the company to say what should be done. He had to propose that the directors be empowered to take counsel's opinion with regard to the receiving of the 2400 shares from Mr. Booth, together with the dividends, and take such steps as they may consider necessary.

Mr. CULPIN seconded the resolution.

Mr. KIMBER opposed the resolution. They were going, he said, to take the opinion of Messrs. Lewis and Lewis, the criminal solicitors, of London, to support that of Mr. Nicholson, who was a common law barrister. None of those gentlemen he considered were capable of giving an opinion of any value in such a matter.

The resolution was then put and carried *nem dis.*

The CHAIRMAN stated that their late salesman, Mr. T. Nicholson, had issued a writ against the company for 87*l.* 3s. 3d., but as he found that Mr. Nicholson owed the company 106*l.* 5s. 10d., he proposed a resolution giving the directars power to defend any action that might be brought against the company for the sum named. Also that, in the event of Mr. Nicholson not proceeding with his action, the directors be authorised to go on with their action against him for the receiving of the sum named.——The resolution was seconded and carried.

The CHAIRMAN said that the sum of 216*l.* 15s. 3d. was put down in the first half-year's balance-sheet of last year as commission due to Mr. Nicholson, to which neither he nor the managing director were entitled. He, therefore, proposed that the sum named should be required to be re-paid to the company.

The resolution was seconded and agreed to.

The CHAIRMAN then drew attention to the position of Mr. George Neville, a coal merchant, and one of the late directors, who received a drawback upon the sales of the coal, the deduction being from 1s. to 1s. 6d. per ton. He proposed that the directors be authorised to proceed against Mr. Nevill for 93*l.* 1s. 4d., for which sum a writ had been issued.——Mr. R. COOPER moved that the writ be not proceeded with, which was seconded and carried.

It was then agreed that the expenses for wresting the affairs of the company out of the hands of the late directors should be paid.——In the course of some remarks, Mr. R. COOPER said the late directors had actually to borrow money to pay the first dividend.

The CHAIRMAN said the wagon works, close to the colliery, although entailing a serious loss, had not been worked to anything like their full extent, and although they could carry on the concern without any additional capital, it was not desirable to do so. It was necessary to buy goods at the first hand, and to put themselves in a position to do so he considered that they must increase their capital. He should, therefore, move that the directors have power to issue 2000 new shares of 5*l.* each. Although the colliery had been anything but creditable to the neighbourhood, and so badly managed, yet as they had got a lease of 150 acres of coal, he believed the concern would turn out profitable.——The resolution was seconded and carried.

Some discussion then took place as to whether the new shares should be issued at par, or 10s. premium.——The CHAIRMAN remarked that for the first shares he purchased he paid 2*l.* premium, and 60 of those he bought from Mr. Nicholson, the late salesman.——Eventually it was agreed that the issue should be left entirely in the hands of the directors.

Mr. CULPIN proposed a vote of thanks to the Chairman, who, he said, had saved their property from utter annihilation.

Mr. L. COOPER, in seconding the resolution, said the Chairman had done an immense amount of work, and he hoped the report of their proceedings would have the effect of showing the public how some limited companies were got up. The history of their own concern was cheatery from beginning to end. They were told in the prospectus that the colliery was getting the well-known Silkstone coal, which was not the case, and he believed that the deception practised upon them would bring the parties under the criminal law.——Mr. R. COOPER, in endorsing what had been said with regard to the services rendered by the Chairman, said he was sorry Mr. Nicholson had left the room, as he wished to correct the statements he had made, which were a tissue of falsehoods.

The CHAIRMAN, in returning thanks, said he had sifted the affairs of the company so as to bring before the shareholders a true statement of their position. He could assure them that he would not hold the office of Chairman a moment longer than he had the confidence of the shareholders.

The proceedings then terminated, having occupied more than five hours.

## SPANISH HEMATITE IRON COMPANY (LIMITED).

The ordinary general meeting of shareholders was held at the offices of the company, Cannon-street, on Tuesday,

Mr. M. J. POWER in the chair.

Mr. WOODBINE CLOETE (the secretary) read the notice convening the meeting.

The report of the directors stated that since the date of the last report they have succeeded in obtaining all the necessary facilities for acquiring the land for the company's railway, and satisfactory progress has been made in taking possession of the several lots, so far as the funds at the command of the board admitted of that proceeding. The proprietors must be all aware of the continued disturbed political condition of Spain; indeed, as regards the district on which the company's operations are carried on, the effect has been to produce almost a total paralysis of the labour market up to the present time. The directors have the satisfaction to announce that an important acquisition of additional mineral property—the Three Crowns—has been made by the company since the last general meeting. The unfavourable state of the local labour market, and the other difficulties indicated in Capt. Tregay's and Mr. Pilkington's reports, will account for the hitherto slow progress of the company towards the realisation of those prospects which were originally entertained by the directors, and which they believe to be fully warranted by the intrinsic value of the company's property in Spain.

The report of the mining captain (Capt. L. Tregay).—San Miguel: Immediately upon my taking charge, I applied all our available labour to open up the peak, ridge, and head of the valley, the three principal points of the mine. But, owing to the unhappy Carlist disturbance, everything here has been and is at present very troubled and uncertain, which has kept our supply of labour very short, and otherwise greatly retarded us in our proceedings.—Peak: Towards the exploration of this part of the mine we pushed on two levels, one from the north the other from the south, with the intention of cutting fairly through the hill, as from indications shown at the top we had every reason to believe it would make a large deposit of mineral below, and we expected to intersect it in one or both of these levels, one coming in at 12 fathoms the other at 35 fathoms from surface. At the top of the hill a large quantity of mineral had been broken before I took charge, since then we stoped about 100 tons, and then, to further our explorations, we commenced a shaft here to come down on the two levels which were being driven towards the centre. This was necessary both for ventilation and for advantageously working this part of the mine. We drove the south level 17 fathoms from surface, and intersected a cross lode about 9 ft. wide, running nearly at right angles with the main level, we drove both east and west on this, the eastern end opening up some fair stoping ground, about 7 fathoms long, but at this point the lode having turned off suddenly to the south towards the surface, and it becoming poor, we considered it useless to continue further in this direction, when we turned our attention to the western end, and pushed it on 9 fathoms from the main level, mostly through unproductive ground. At this point we intersected the main lode and drove on its course towards the Peak shaft, and are now within 7 ft. of the point directly below it, the shaft not being down to this level. We have here opened up some very fair stoping ground, the lode showing much better here than in the bottom of the shaft, which is 6 fathoms above. When our supply of labour will permit it I propose to run another level below this point, to open up more stoping ground here.—North Level, known as the Bullock-road Level: We have driven this 32 fathoms from surface. Having a great distance to drive this end to reach the centre of the peak, we considered it advisable to prove it with our south level first, not having so far to drive there, therefore we stopped this for the present, having other places of more importance to work the few men available.—Ridge: This is a great champion lode, with the appearance of having abundance of mineral beneath, and I had no hesitation in pushing on prospecting levels here. To open up this ground I continued two levels that had already been commenced on the course of the lode, and I commenced another at a still lower point for the same purpose. I also drove a cross-cut to intersect the lode at a point near to the head of the valley, where it made about 9 ft. wide. As the ground through which we were driving was not producing iron in paying quantities, and as we had other points where we could profitably employ a much larger number of men than were available, I stopped these levels, nor would I advise their being proceeded with until we have a superabundance of labour.—Head of the Valley: Our operations here have also been limited owing to the scarcity of labour. If, when the line is laid to the Three Crowns, it should come near this point, which I think it will, there can be a great quantity of mineral broken here, and also from the top of the ridge, where the lode outcrops, and at a reasonable profit.

Three Crowns: On receiving instructions on Oct. 27, 1873, to commence operations at this mine, I applied what force could be spared from San Miguel to open the mine, and I have gradually increased the number of hands since, as opportunity offered. We have had a great deal of preparatory work to do here in cleaning and enlargening old levels; we have also driven two new cross cuts, and cut the lode in both, one of which is now yielding a great quantity of mineral, although we could have broken a great deal of mineral on the outcroppings. I consider it advisable to prove the mine in depth, as the outcroppings being already open there are no discoveries to be made there, and we can at all times fall back on them for mineral to keep up the supply, when we have a line of road laid here to take it away. Breaking mineral in the open places would entail the expense of making platforms for piling it, which, in my opinion, would be a waste of money, as the ore can be easily broken from here at any time after the means of transport are provided.—Old Cross-cut Levels: These and the outcroppings are the principal points on which our recommendation of the mine were based. At these levels we have cleared and driven 35 fms. In the south end the lode is at present somewhat disordered, apparently by a cross-course, but, being short of hands for other points, we thought it advisable to suspend this until labour is more plentiful; and, also, having an end coming towards this from the south outcropping in good mineral ground, we expect to trace the lode from there without the time and expense of opening it from this point.—North: The lode is large and very productive, about 18 ft. wide, composed of brown and white iron of high produce, and we are now breaking a large quantity of mineral from here. We have a cross-cut coming in below this point, by which we shall gain 17 fms. of back or height of lode, and I expect to complete it by the end of March. This will be a great addition to the mine, and I have every confidence of its being a success.—South Out-cropping: We have here a good productive lode, from which we have already broken about 200 tons of mineral. We are stoping here from surface, and also rising in the back of the level for new stopes, which, when got to work, will considerably increase our output of mineral.—Nos. 1 and 2 Cross-cuts: The lode at these points is about 9 ft. wide, and yielding iron ore of the first quality. The ground being soft, mineral can be broken at little cost when got into thorough working order. We are now breaking a quantity of mineral from here in beating home the lode to the walls, preparatory to our putting in timber for advantageously working the stopes above. Before commencing operations on this mine I entertained and expressed a most favourable opinion of it. The work I have since carried on has more than confirmed my opinion. Up to this most of the work has been of a preparatory nature, clearing out old levels, opening out new ones, making platforms for piling mineral, &c., and, therefore, our actual output has been comparatively limited. Henceforward we shall gradually increase our daily output, and within a short time I am confident we shall bring to pile a very large quantity. In conclusion, I would again remark that this has been a most exceptional time in Spain, and that the difficulties arising from the disturbed state of the country were such as to render any material progress in works impossible. All the best miners have been taken away by the Carlists, leaving us nothing but a few old men and women. I may safely say that I have never had more than an average of three to four good miners on the mines.

The CHAIRMAN said: The report and statement of accounts which have been laid before you are so full and explanatory that they do not demand any lengthened observations from me. I shall, however, proceed to take the paragraphs of the directors' report seriatim, and will afterwards be happy to answer such enquiries upon the affairs of the company regarding which any proprietor may think it desirable to obtain further information. In October last the final valuations were made, enabling us to proceed upon our compulsory powers for entering upon the lands required for our railway, and it now only remains for us to take possession of the remaining portions of such land, accordingly as the construction of the railway progresses, and as our funds admit. For that purpose it will be necessary to call up the unpaid portion of the subscribed capital of the company—30s. per share; but this the directors propose to have spread over three months, and payable in two moieties; of the precise amounts and dates when payable due notice shall be given to the proprietors. The difficulty of procuring a supply of labour since the outbreak of civil disturbances in Spain, unfortunately, continues to the present time, but this company has been exempt from the violent interference with its operations that some British neighbouring undertakings of the same kind have felt, to their great loss. Since they last met the proprietors in this room the directors have secured an important addition to the company's mineral property, in the Three Crowns Mountains, upon terms peculiarly favourable to the company. Of the character of this property the directors have every reason to accept, with the utmost confidence, the report of it furnished by Capt. Tregay. I have myself visited these mines, and the evidences of ore that I found on all sides fully confirm, to my mind, the value of this acquisition. In the statement of accounts we give the expenditure since the commencement of the company's operations. I do not know that there is any item therein which requires special reference. The properties and concessions stand at 17,500*l.*, which represents the original consideration paid for the properties, together with the amount expended on the exploration and development of them. And now, gentlemen, to be in order, I will move the adoption of the report and accounts.——Major-Gen. BURN seconded the proposition.

Mr. PATTISON asked what decision had been come to in regard to the proposition for working the mine in connection with others, by which the company would have been redeemed from the risk of the expenditure exceeding the proceeds, and at the same time some margin left?

The CHAIRMAN said the only proposition he knew of was an expected advance to aid in carrying out the railway.

Mr. PATTISON had understood an offer had been made to work the mine either upon a royalty or rent.

The CHAIRMAN said it had never assumed a sufficiently definite shape to be considered by the board.

Mr. CHADWICK said the most important paragraph in the report was that referring to the Three Crowns property. He should like to know the terms upon which it had been acquired, whether the company was in actual possession, and whether a large additional expense was involved in making the railway, so as to acquire the mineral?

Mr. PATTISON asked if the directors would allow their remuneration to remain in abeyance until the company was working at a profit?——The CHAIRMAN said the company were in possession of the Three Crowns property, and were assured the title was perfectly good—in fact, that there was no risk of any question arising upon it. The terms were a royalty of 6d. per ton on a minimum output, making a rent of 500*l.* per year; by a few months' notice they could get rid of it, but it was held in perpetuity. As to the directors' fees, they had not drawn anything since December, 1872, and did not propose to do so until the company were paying dividends. He added that it was not proposed to carry the railway further than the head of the valley, as from that point they had the choice of more than one means of conveyance. If they did not think proper to go to the expense themselves of transport it could be done by contract for 2 frs. or 3 frs. per ton; he had gone through the calculations, and found the contractor would realise a profit upon a moderate output of 800*l.* per year—that was to say, if the company did not like to incur the expense of fixing the wire tramway. The managers had reported very honestly the condition and prospects of the Three Crowns property. The shareholders had seen from the newspapers the conflicts going on between the Carlists and the Government, and when those difficulties were over there was no doubt they would have an abundance of labourers, the absence of which was their only drawback; there was no shadow of doubt as to the extent and quality of the ore in the Three Crowns property. An expenditure of 200*l.* on the road would enable them to work a traction-engine with wagons, and bring down a very handsome quantity of ore, and when the present company were not using their railway, there was reason to expect a very considerable quantity of ore from other mines would be carried over it at very remunerative rates—that alone would give a very handsome return upon the outlay.

The report and accounts were received and adopted.

Major-General Burn and Mr. Fennelly, the retiring directors, were re elected.

Messrs. Chadwick, Adamson, Collier, and Co. were re appointed auditors.

Mr. O'HARA had much pleasure in proposing that the best thanks of the shareholders be tendered to their Chairman, whom he had had the gratification of knowing for many years, and his presence precluded him from saying what he otherwise would have said. But he would say it was an honour to have such a gentleman as their Chairman. He then proposed that the best thanks be given to the Chairman and directors.——Mr. PATTISON seconded the proposition, which was put, and carried unanimously.

The CHAIRMAN said the compliment just passed made it the more acceptable to him because it had included his colleagues, and he could assure the proprietors that everything would be done to promote the best interests of the proprietors, the directors themselves holding three fourths of the shares. (Hear, hear.)

The proceedings then terminated. ——

## LLAY HALL COAL, IRON, AND FIRE-BRICK COMPANY.

The first annual ordinary general meeting of the shareholders was held on Wednesday at the offices of the company, 173, Fenchurch-street, E.C., Mr. FRANCIS BENNOCH in the chair.

The notice convening the meeting was read by the SECRETARY (Mr. Herbert R. Duke). The report of the directors was taken as read.

The CHAIRMAN said he was very happy to see the shareholders that day, first for the pleasure of meeting, and next from the fact that the directors had a very good report to submit in regard to the working of their property in Wales. As regarded the mines, the shareholders would observe that they had the whole of the property entirely in their own hands; all their liabilities were paid of every kind, and they had a balance at the bankers of 4173*l.* The whole of that sum, however, was already engaged for the works now in progress, which he should explain in detail presently. Some of those shareholders who had looked at the accounts might consider that the preliminary expenses and other charges during the first year of their operations had been somewhat heavy. They had been so; but when they came to remember that this company had been floated upon a principle almost unique in itself—that they had not paid a farthing of financing or promotion in any shape or way, he did not think the sum charged in the accounts would be considered excessive, or even large. If they had paid only the small charge of 5 per cent. for financing the company, that 5 per cent. would have amounted to more than ten times the whole of those preliminary expenses. That, he thought, must be satisfactory to the shareholders. (Hear, hear.) This was, in fact, absolutely a private company, the whole of the shares having been taken up by the private invitation of the directors and their friends, and without having recourse to the ordinary means of advertising in the public press. The time, however, would probably come when they would have recourse to that, but for the present they thought it better to continue as they were now proceeding. The few shares—1800—which they desired to place, so as to obtain the requisite funds to carry on the working of the property to the end of their financial year, would, in the first place, be offered to the present shareholders *pro rata*. Having thus referred to the accounts, which he was persuaded the shareholders would find in a very satisfactory condition, the Chairman said he should next allude to the condition of their property. The property they acquired in the first place consisted of a little over 550 acres. Since then, however, fortunately for the company, they had found there were some mineral properties adjoining which could not be worked by themselves, but could be very advantageously by this company. These two properties were situate very close to their own pits, and could be easily worked. Thus it had been obviously to the advantage of this company to secure those properties also. The owners had agreed to accept the same terms as those on which the original property of the company had been purchased. The extent of their property was now about 700 acres, but the portion where the two pits were sunk, or sinking, would only be about 200 acres. Those 200 acres would, however, give them a yield of about 6,000,000 tons of coal, and that, at 500 tons per diem, would take them as nearly as possible 40 years to work out. With regard to the difficulties arising from water, the shareholders would be pleased to learn that their pumps would command and control the whole of the water that would get into those pits. Between that portion of about 200 acres and the other part of their property of 500 acres there was a heavy fault—a fault that caused considerable differences of opinion as to the levels, or points, or depths at which they could reach coal. The company had engaged to sink two new pits in that new property, as nearly in the centre as consistent with advantageous working. When the time came for sinking those pits they would have to consider in what manner the capital should be raised for that special and particular work. In the meantime it was very satisfactory to know that they had in the pits now sinking an absolute property that could not be exhausted in less than 40 years at 500 tons a days. Now, the more they examined into the property, the more they had reports made in regard to it, the more they were satisfied that they possessed in that locality probably the very finest property in North Wales—(hear, hear)—and he believed that on the complete development of their property the far-famed Westminster Colliery would be almost obliged to stand second in value to that owned by this company. The next point to be noticed was what they were doing with this property. They had two pits on the one side of the great fault fixed in the very best possible position. In the prospectus they had been told that one of those pits was within a very short distance of the coal. Fortunately for the company they had found the coal within 7 yards, instead of the 25 or 30 yards that had been expected, of the point to which the works had been sunk at the time the company had taken over the property. If the vendors had known of the close proximity of coal they would not have sold their property at the price at which it had been acquired. Having proved that coal they had gone through it. At the top they had bricked down to a particular point, and then in descending to the first seam of coal they had come into contact with water, and they had what was termed "tubbed" the water out. The flooding of the mine had been a point on which great anxiety had prevailed on the part of their predecessors. In fact, the excessive influx of water had caused them to abandon it, and for two reasons—first, from a sort of feeling of despair; and, secondly, because they had not had the capital to work it out effectually. And the property had been allowed to lie idle for several years. Now the whole of the expectations contained in the prospectus had not only been confirmed by experience, but their confirmation had proceeded in a very gratifying manner. For instance, they had in the last 10 days struck a seam of coal, called the Upper Droughy, that had been reported to be at a depth of 160 yards, but in consequence of an upthrow or lift in the coal the position of that seam had not been exactly known. However, the result of that upthrow was that instead of having to go 160 yards they had absolutely got to the coal within 70 yards of the surface, in a seam 9 feet 6 inches in thickness, which was divided by portions of dirt, but there was a thickness of 4 ft. 6 in. of admirable coal, which they were now working. But they could not work it with sufficient facilities at present, until they got the second shaft down to it. That second shaft was within a few yards of the point of working, and by May 1 they were assured by their engineer that they would have the two pits down to this seam, both tubbed out, and perfectly workable. Their policy would be now, having reached this point, and knowing exactly where they were, to proceed as rapidly as possible with the sinking, so as to get to the 6-ft. seam at the depth of 100 yards more. They hoped to attain that point by Oct. 1 next. The next seam they would reach was that called the main seam, which was the popular coal throughout the district. That point would probably be arrived at by the beginning of December or the end of the present year. These facts would, he believed, have shown the meeting that as far as regarded their working they were in an exceedingly good position. Next, with regard to the brickworks. They had not forced forward their brick manufactory to any extent beyond that required for their own purposes. The main reason for that inaction had been the high price of coal, which, of course, proportionately increased the cost of manufacturing the bricks, but now that they were in possession of their own coal they were pushing most energetically forward every matter connected with that most important industry, and at the end of the year they would not only be producing sufficient bricks for their own works, but also for the general public—(hear, hear)—and not only bricks, but ornamental flower-pots, fire-bricks, and various other articles. The clay on the company's property was, he was pleased to state, superior even to the Buckley earth. They were extending their sheds and kilns, and the whole of the works connected with this manufacture. Those extensions would be finished by the end of June or July, and by the end of the year they would be prepared to enter into contracts for the supply of bricks in every form and shape. Then, as to the forge and mills possessed by the company for the rolling and producing sheets of iron, for which there was always a steady demand, they had been advised by their wisest friends, and by some of the largest shareholders, and the board were quite in accordance with them in the opinion, that looking at the condition of the iron market at present it was not advisable to become ironmasters. (Hear, hear.) Undoubtedly the iron trade was at the present moment in a transient state, and during the last two or three months the most disastrous change had

occurred. The board had no intention of undertaking an iron manufactory, but looked to the time when they should let their works to men who were already engaged in the trade. They had several applications for the works, and he did not doubt but that in the course of a very short period they would have the pleasure of reporting to the shareholders that the works were let. The advantages of such an arrangement were many and obvious. They would be enabled to utilise their railway now in course of construction; but the most important consideration was that they would thereby secure a very large customer of coal and the other articles of which they were the producers. Now, having all those matters so clear and clean in form and shape, the next question that arose was, what were they doing to put themselves in communication with the markets of the country. The position of the railway that ran within a short distance of the property was such as to render it necessary to construct a branch line of about 1 mile in length. By this means they would be placed in direct railway communication with the principal railway systems of the kingdom, and also with the shipping port at Connah's Quay on the Dee. With regard to the cost of the branch line, he was pleased to be able to state that owing to the great experience possessed by Mr. Carr and Mr. Pierce in these matters, and owing to that knowledge having been employed in conducting the arrangements with the contractors, the cost of that branch instead of some 9000*l.* or 10,000*l.*, as originally expected, would not exceed 7000*l.* (Hear, hear.) The line would be in the hands of the company probably by August, but by September at latest. Having detailed the general policy to be pursued, the Chairman said he would next consider the question as to the amount of profit to be realised. It would be too much to expect that the present prices would continue for a long period. They fully expected modifications would occur in present prices, and, taking those modifications into account, the directors had come to the conclusion that even if they were to sell their coal at 10*s.* per ton, instead of 14*s.* to 15*s.*, the present price, and the other grades of coal in the same proportion, they would, nevertheless, have sufficient revenue to pay the proprietors far more than had been contemplated when the prospectus was first drawn up. That was to say, they expected to realise a clear profit, after paying all expenses whatsoever, of from 2*s.* to 3*s.* per ton, thus yielding a dividend of 20 to 25 per cent. That, he thought, was a very satisfactory prospect. Passing on next to notice the position of the men in their employ, he (the Chairman) said they had started on the plan of making their workmen their friends, by showing due courtesy and consideration in dealing with them, and they found that was responded to on the part of the men by a peaceful, quiet behaviour, and strong desire to do all they could to forward the interests of the company. In the locality in which the company's property was situated there was no accommodation for the workmen, except two or three miles distant. They had, therefore, purchased a piece of freehold land sufficiently large—they had paid for it something like 700*l.*—for the construction of 80 cottages, which would afford accommodation to between 100 and 150 men. The advantages of that arrangement would be very great. In conclusion, he had only to remark that whether they looked to the condition of their mines, of the brick manufactory, of their cottages, or of their people, he thought the shareholders would deem that the company stood in a very satisfactory position, and that its future was most bright and promising. (Hear, hear.) The Chairman then formally moved the adoption of the report and accounts.

Capt. GIFFARD seconded the motion.

A SHAREHOLDER asked if the railway in course of construction took them to Birkenhead?——The CHAIRMAN: Yes, everywhere.

Mr. H. R. DUKE (the secretary) said a Bill had recently been obtained for the direct communication with Birkenhead, and, doubtless, in a few years, on the completion of the tunnel, the company would have direct railway communication with Liverpool itself.

The CHAIRMAN, in answer to a question, said that it would probably require the expenditure of the whole of their capital of 75,000*l.* to place them in a position to raise 500 tons of coal a-day.

A slight discussion ensued, in the course of which several shareholders addressed the meeting, the general tenour of their remarks being of a congratulatory nature.

The resolution for the adoption of the report was then unanimously carried.

The formal business relating to the re election of retiring directors and auditors having been disposed of, the proceedings closed with a cordial vote of thanks to the Chairman and directors, the secretary, and manager at the works.

## WEST MOSTYN COAL AND IRON COMPANY.

The statutory general meeting of shareholders was held, on Wednesday, at the City Terminus Hotel, Cannon-street,

Mr. RICHARD SHAW, M.P., in the chair.

The SECRETARY read the notice convening the meeeting.

The CHAIRMAN said, as the shareholders were aware, the present meeting was the statutory meeting of the company, and, therefore, was merely of a formal character, being held in pursuance with the Act of Parliament, which required the directors of a newly-formed company to call the shareholders together within four months of the registration of the company. Now, the object of this Act would be patent to everybody; it was, undoubtedly, that the shareholders might have an opportunity of meeting the directors face to face for the purpose of ascertaining whether they had become connected with a *bona fide* or sham concern. So far as his (the Chairman's) experience went, he was perfectly satisfied that they had a *bona fide* concern, but before he had consented to have anything to do with the company he had visited his friend, Mr. Jacob Higson, of Manchester, one of the most eminent engineers in that quarter, and it was not until he gave him (the Chairman) his assurance that it was of a very valuable character that he had consented to become connected with the company. The directors of the company thought it their duty to visit the property themselves, and with Mr. Craig, the resident engineer, and Mr. Clarke, the contractor, they visited the whole of the property, and examined it most carefully, and they all had left the place with a very favourable impression. He might further state for the shareholders' satisfaction that the directors had arranged with Mr. John Higson, of Manchester, to be their engineer, and in future everything would be done under his advice and that of the superintendent. The directors had no accounts to submit to the shareholders, nor dividends to present them with on this occasion, but at the end of six months they would have received sufficient money out of the contractor's funds to enable the directors to pay the shareholders the 6 per cent. dividend. If any gentleman wished to ask any question with respect to the company, he would be most happy to answer them to the best of his ability.

Mr. BRAIDSHAW asked how many preference shares had been subscribed for, and whether in any future issue the preference would be given to existing shareholders?

The CHAIRMAN replied that in alloting the shares the directors had to take into consideration the probable amount of capital which would be required, and they were at that time considerably in the dark on this point, and they thought it proper to limit the number of shares to 5600. For some time past the directors had been refusing at almost every board meeting to issue more shares, but it was just possible they might require to increase their capital. At the same time he would point out that everything depended upon the sinking of the shaft between the surface and the solid, a distance of about 23 yards. If they did not meet with any water until they got to the solid he believed that the 56,000*l.* already subscribed would more than cover their expenditure, but if, on the other hand, water or quicksands were met with they would then require more capital. He thought, however, that at any time they would have no difficulty in getting the rest of the shares taken up, such was the estimate in which the company was held. Mr. White (one of the directors) had been informed recently that a gentleman was willing to take 500 shares if they were offered for acceptance. The committee would have to ask the shareholders for discretionary powers in this respect, to be exercised according to the state of the works. (Hear, hear.) Respecting the second question he said there were certain persons who had applied for shares, and had been refused; he thought those persons should have the first chance, and then the existing shareholders should have the next preference.

A SHAREHOLDER presumed the dividend would be paid at the end of the six months.——The CHAIRMAN replied that the shareholders were entitled to 12 per cent. per annum, and out of the money sent to the contractors fortnightly and monthly a sufficient sum was retained to ensure the payment of a dividend of that amount.

Mr. KIMBER said as there appeared to be no further questions to ask, he would propose a vote of thanks to the Chairman. He thought it was extremely satisfactory to the shareholders and the public generally to have a Chairman who had so thoroughly grasped the whole scheme of the undertaking. There was no doubt that in consequence of the untried character of the property some difficulty might arise with regard to the works of development, but he thought it was altogether the soundest and safest unworked field in the kingdom. (Hear, hear.)

Mr. EDWARDES seconded the motion, and it was carried with acclamation.

The CHAIRMAN having returned thanks, the meeting terminated.

## MID-MOONTA COPPER MINING COMPANY.

An extraordinary general meeting of shareholders was held on Tuesday, at the City Terminus Hotel, Cannon-street,

Mr. CHARLES MORRIS in the chair.

Mr. P. H. POPE (secretary) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen, this meeting, as you know, is called for the purpose of confirming certain special resolutions that were made at the last meeting, which took place on March 3 last.

The SECRETARY then read the said resolutions.

The CHAIRMAN: I propose that these resolutions be now confirmed.——Mr. CAMPBELL seconded the motion.

Mr. HILL: I beg to move, as an amendment, that the resolutions be confirmed, with the exception of the one relating to the directors' remuneration.——Mr. H. W. WHITE seconded the proposition.

The CHAIRMAN: Mr. Herbert (solicitor to the company) tells me that I cannot put an amendment; the question is whether or not the resolutions be confirmed. I must put it in this way—that all the resolutions be confirmed, with the exception of the one relating to the directors' remuneration. The Chairman then moved the confirmation of all the resolutions with the exception of the one in question.——Mr. CAMPBELL seconded the motion, which was then unanimously carried.

Mr. HILL said the only reason he had for rejecting the resolution was because the Mid-Moonta, although they had great hopes of it from the reports received from the colony, was very much in the position of an unproved mine; therefore, the services of the directors could not have been very onerous. Of course, the amount of 500*l.*, the sum proposed, was either large or small in proportion to the success attained. His opinion was that the sum was large under the circumstances.——The CHAIRMAN observed that the remuneration proposed was not paid in money, but in shares entirely. There would be no money forthcoming.——Mr. E. B. GUDGEON said that until they were in a position to see that they were really earning something the directors would honour themselves by deferring the question of remuneration.

The CHAIRMAN said the question had been for some time before the shareholders. If the company succeeded the proprietors would not grudge the sum proposed; if, on the other hand, their property were worthless they gave nothing away ——Mr. CAMPBELL pointed out that the directors had worked for two years for nothing.

Mr. G. F. SEYMOUR thought the great objection to the proposal was that it added 4½ per cent. to their present capital.——Mr. STEWART said directors on assuming office took upon themselves a certain amount of responsibility, and he thought their services should be remunerated without regard to the success of the company. The present members of the board might not be holding seats on the direction a year hence; therefore, he did not think it desirable to postpone the decision on the question at issue.——Mr. CAMPBELL said all the money they could get should go to the working of the mine. He, for one, should not consent to taking any money from the funds of the company; therefore, it was proposed that the remuneration of the directors should consist of shares.

The CHAIRMAN then moved the confirmation of the following resolution:—"That in addition to the salary of managing director in Australia the sum of 500*l.* is hereby voted to the directors for their past services, such sum to be divided among them as they shall think fit."——The resolution was confirmed by eight votes against three, the directors voting.——Mr. WHITE then demanded a poll, and, on the requisition being duly signed, the CHAIRMAN said the poll would be taken on Thursday, April 2, at the offices of the company, between the hours of 12 and 1.

The proceedings then terminated.

## ORINOCO GOLD MINING COMPANY.

A general meeting of the contributories of this company was held, on Wednesday, at the City Terminus Hotel, Cannon-street, for the purpose of submitting an account showing the acts and dealings of the liquidators, and the manner in which the winding-up has been conducted during the year ending June 30, 1873, more particularly with reference to the position of the company under the agreement dated June 29, 1872, and made between Hilarion Nadal of the one part, and Stephen Henry Emmens of the other part; and for the purpose of submitting resolutions having for their object the guidance of the liquidators in the steps, if any, to be taken for enforcing such agreement. The chair was occupied by Mr. E. SCHUBERT, one of the liquidators. The notice convening the meeting was read.

The CHAIRMAN said the liquidators had not gone into a regular balance-sheet on the present occasion, but they had made out an account showing the credit and debit of the contributories they had still open. If any shareholders desired to see them they were on the table for their inspection. He might mention that in the beginning of 1872 he made the acquaintance of Mr. Emmens, that gentleman being a promoter of joint-stock companies. At that time the company stood in need of additional capital, and Mr. Emmens having expressed a favourable opinion as to the nature of the property, promised that if the company went into liquidation he would take the matter up, and form a new company to work it. Accordingly a general meeting was called, and Mr. Nadal, one of the directors of the Orinoco Company, entered into a provisional agreement with Mr. Emmens. A second meeting had been subsequently held, at which the agreement was approved and confirmed. Mr. Emmens undertook to form a separate company, and as their concessions had only nine months more to run he had agreed to send out within that time an agent to take possession of the property. In September—the agreement had been made in July—he called upon Mr. Emmens, who informed him that he had transferred the whole matter to Mr. Thompson, a mining agent in Palmerston-buildings, and that he would form the company. Thereupon he had gone to Mr. Thompson, who said he was then arranging a company, to be called the New Caratal Company, the prospectus of which was printed, and he expressed a wish that he (the speaker) should introduce some directors. He had introduced Mr. J. R. Hall, the chairman of the late Orinoco Company, to be the chairman of that company. A board meeting was called, and the prospectus approved. A few weeks later another board meeting was held, at which Mr. Thompson proposed that the directors should advance the money, though the company was not at that time registered, which was required for the purposes of sending out Captain Holman, who had been out before, to take possession of the property. Mr. Hall, in the chair, refused to sanction that the directors themselves should subscribe the money; and Mr. Thompson consented to provide the expenses for sending Capt. Holman out. A few weeks later, in November, Capt. Holman left, with the understanding to take possession of the property for the new Caratal Company. Subsequently, their solicitors received communication from the solicitors of the other parties, stating that the agreement which Mr. Emmens had made with Mr. H. Nadal was not to their satisfaction, and that there should be certain amendments and alterations made therein. In the meantime, Mr. Harding and himself had been appointed liquidators, for the purpose of transferring the property to the new company. The amended agreement, which was a totally different agreement to that originally framed and signed, had been sent to the liquidators, and they handed it to their solicitors, who, having consulted with himself and Mr. Harding, said that they would try to come to an understanding with the solicitors of Mr. Thompson. One month after another passed, and, notwithstanding several communications had been addressed to Mr. Thompson's solicitors, no reply had been received. Meanwhile, Captain Holman returned. He did not call on him (the Chairman), but he had been informed that Capt. Holman had been very ill. Their concessions, according to the terms on which they were granted, had lapsed, but he still believed that if the company felt disposed to take them up they could get them. Not being able to obtain a reply from Mr. Thompson's solicitors, the liquidators had taken counsel's opinion as to whether or not they could enforce the contract. Such was the present position of affairs, and the first resolution to be submitted to the meeting was as follows:—"That the account of the acts and dealings of the liquidators, and of the manner in which the winding-up has been conducted during the year ending June 30, 1873, be, and the same is hereby, ratified and confirmed."

Mr. CHARLES DINGWALL begged to move the adoption of the resolution; this, on being seconded by Mr. POLLOCK, was after a brief discussion put, and carried.

Mr. POLLOCK next proposed "That upon consideration of the position of the company under the agreement dated June 29, 1872, and made between Hilarion Nadal on the one part and Stephen Henry Emmens on the other part, and having regard to the opinion of counsel upon the case submitted to him, the liquidators are hereby authorised and empowered in their discretion to negociate and conclude a compromise of the questions in dispute with the said Stephen Emmens upon such terms as they may think fit, or to abandon *in toto* and treat as null and void the said agreement."——Col. WELLER seconded the proposition.

A short discussion ensued, in the course of which objection was raised to the motion on the ground that it might involve the company in further legal expenses, but upon the Chairman and Mr. Harding giving assurance that no such outlay should be incurred the opposition was withdrawn and the proposition was agreed to.

A vote of thanks to the Chairman closed the proceedings.

## VAN MINING COMPANY.

The general meeting of the shareholders was held on the mine on Wednesday, Mr. W. PAGE in the chair.

Mr. W. J. LAVINGTON (the secretary) read the notice convening the meeting.

The report of the directors and balance-sheet (which appeared in last week's Journal) were taken as read.

The report of the manager was read, as follows:—

*March* 24.—I beg to hand you, as under, a general report of our progress here since our last half-yearly meeting, in August.—Seaham's Engine-Shaft: This shaft has been sunk since your last meeting 3 fms. below the 75, and is now a total perpendicular depth from surface of 98 fms. 9 in. We have cut and timbered a commodious lodge or plat, also a loom for the storage of water, which in case of any temporary stoppage of the pumping machinery will contain four hours accumulation of water. The 75 fathom level cross-cut has been driven north to intersect the lode from the shaft a distance of 17 fms.; we have not as yet driven thoroughly through the lode, but in our opinion, when such is done, we shall probably find it to be about 6 fms. wide. The last 4½ fms. driven through has been intermixed with lead ore throughout. We have now started to drive westward upon a rib of steel ore and blende. We have driven 9 ft., and, so far as seen, the lode is very strong and masterly, and much improved, as compared with the same point in the 60 overhead. We have about 3 fathoms more to drive west to get under the great course of ore seen going down upon the main leader of the lode in the bottom of the 60, which is worth 100*l.* per cubic fathom. The 60 fm. level has been extended westwards 24 fathoms, upon a lode varying in produce from 15*l.* to 100*l.* per cubic fathom, but will average for the 24 fms. about 40*l.* per cubic fathom. At the present end the lode is worth 70*l.* per cubic fathom. The total length of this level west of shaft is now 47 fms. The same level, east of shaft, has been extended upon main leader of the lode 18½ fathoms; total length at present, east of Seaham's shaft, 36 fms. The piece of ground passed through in this drivage is worth on the average 50*l.* per cubic fathom. We are stripping the lode to its full width, east and west of the shaft, by four pares of men, for a length of 32 fms.; the width varies from 3 to 5 fms., and for that width, as far as seen, it is worth on an average about 32*l.* per cubic fathom. At a point 11 fms. west of Seaham's shaft we are sinking a winze for the purpose, when communicated, of ventilating the 75 fathom level, and also to form a pass for the transit of stuff to fill up stopes when required in the back of the 75. The winze is already sunk 3½ fms. As soon as communication is effected between the winze and the 75 we shall resume the sinking of Seaham's shaft for the 90, and hope to intersect the lode in that level in about 12 months hence. The 45 fm. level now measures 118 fms. west of Seaham's shaft; thus we have extended during the past half-year 16 fms. 4 ft. It affords me great pleasure to inform you that we find the ore ground in this level has extended 27 fms. further west than in the 30 above, and the lode in the present end is worth 70*l.* per fathom for lead ore. For the last 15 fms. driven the lode will average in produce 50*l.* per cubic fathom. In the same level, east of shaft, nothing of importance has been done during the past half-year, in consequence of our not being in a position to utilise the stuff from the level to fill up stopes, until the 60 is more extensively opened. The end at present is poor. The winze sunk below this level, east of shaft, known as the 30 fm. winze, has been communicated to the 60, as also the 37 fm. winze, west of shaft. The 54 winze, west of shaft, below the same level, has been sunk to the depth of the 60, and we are now crossing north to the footwall of the lode, from the bottom of the winze, in order to communicate with the 60, which is driving upon the footwall, when it reaches this point. We have also commenced sinking another winze at a point 75 fathoms west of shaft, for the same purpose. The stopes in back of the same level, east and west of shaft, 19 in number, measuring in the aggregate 135 fms. long, are on the average 20 ft. wide, and for that width are worth about 32*l.* per cubic fathom. The 30 has been extended west of shaft 20 fms., and now measures altogether 165 fms. west of Seaham's shaft. At a point 150 fms. west of shaft we crossed through the lode to prove its value, and in a cross-cut, 13 ft. long: the first 6 ft. was worth 15*l.* and the last 7 ft. 8*l.* per fathom for lead ore: 10 fathoms further west, we crossed again, and cut nice stones of lead ore. It seems very probable that when the 45 is driven up to this point we shall have a good course of ore in that level. The present end of the 30 is poor. The stopes in back of this level, six in number, are on an average 20 ft. wide, worth for lead ore 24*l.* per cubic fathom. You will see by looking at the section that these stopes are nearly worked through into the "deads." The stopes in back of the 15, two of which are west and three of them east of the shaft, are on an average about 18 ft. wide, worth 12*l.* per cubic fathom for lead ore.—Permanent Levels: The deep adit permanent level now measures 40 fms. west from Seaham's shaft. The 30 fm. permanent level also measures 45 fms. west of the same shaft. In the 15 we have cut and timbered a bob-pit, and fixed balance-bob, &c., to counterbalance the weight of the main rod and assist the pumping-engine in its duty. The bob answers the purpose exceedingly well.—Surface: The dressing machinery is all in good working order, as also are all our engines and boilers. We have replaced one of our old boilers with Galloway's patent boiler, which we find a great fuel economiser. We have also constructed several new slime or filtering pits, and extended our water culverts, &c. We have completed the raising of the reservoir embankment, all but the paving of it, which we deferred until the new or last piece should settle down and harden. The agent's new house is completed.—General Remarks: I am happy to be able to endorse a statement which I have made to you oft-times before, and that is, the mine never looked so well as at the present time; and, more than that, I can say that it never looked so permanent. You will have seen from the foregoing report that we have a splendid lode in our 45 west, a splendid lode in our 60, the same in our 75, and a splendid lode going down in bottom of the 75 for the 90. By looking at the section, at the amount of ore ground in reserve, you will see that our reserves are continually augmenting, and I am glad to be able to state that never at any former period have they been so large as at the present time.—WM. WILLIAMS.

The CHAIRMAN moved the adoption of the report as circulated, and stated that during the existence of the company 25,565 tons of lead and 5320 tons of blende had been sold, realising 371,466*l.*, and that to the end of the year 1873 the sum of 167,250*l.* had been divided amongst the shareholders in the shape of dividends.

Capt. WILLIAMS, in reply to questions, stated that the 30 was above 35 fms. from Edwards's shaft, and to this point the lode has been proved good. The 45 west was about 80 fms. from Edwards's shaft, and could be communicated in about 18 months. The 30 could be communicated in about six months. Edwards's shaft was not deep enough yet for the 30, and at present the water was in, but when communicated with the 30 the sinking can be resumed. The lead about Edward's shaft contained less blende, and was altogether of a purer character. The 45 end, towards Edwards's shaft, was just coming into a good course of ore already proved in the 30 overhead. The lode in the 75 was, at the point intersected, richer than in the 60 overhead. The rib of steel ore, though continuous, was in places larger than at others, and as depth is attained the lead produced is found to contain more silver. The 60, both east and west of Seaham's shaft, has a continuous course of ore. None of the levels eastward are yet under the old workings. He was quite satisfied with the 75 as far as seen. Cannot say yet as to the probable chance of any reduction in the cost, but entertains a good hope of being able to effect a reduction. Coals, at all events, would be cheaper.

The report and balance-sheet were adopted. Mr. W. Page was re-elected a director, and Mr. Whaley auditor.

Several shareholders present went underground, and were well satisfied with the appearance of the mine, especially in the bottom level.

Votes of thanks to the Chairman, directors, and manager closed the proceedings.

## GREAT WHEAL VOR UNITED MINING COMPANY.

The general meeting of shareholders was held at the offices, Gresham House, on Wednesday,—Mr. J. O. HANSON in the chair.

Mr. J. J. TRURAN (the secretary) read the notice convening the meeting. The report of the committee was read, as follows:—

By the circular of the committee of management issued with the notice convening the usual quarterly meeting, the shareholders have been made aware of the great fall which has taken place in tin during the last three months, amounting to no less than 18*l.* per ton, thus increasing considerably the loss that was estimated by the agents as likely to be made in the development and working of the mine from that period to the present time. The committee regret, also, that they are unable to report any material improvement in the mine itself, as will be seen from the agent's report to be now presented. In the circular alluded to it was mentioned that an inspection of the mine would be made by Captain Josiah Thomas, of Dolcoath Mine, and by Capt. William Thomas, of Crenver and Wheal Abraham Mines. Their reports have been received, and will also be presented to the meeting. In addition to this the committee have been using every means in their power of acquiring reliable information as to the future prospects of the tin market, both as regards supply and demand, and, although it is thought that the price of tin cannot continue at its present depressed figure, yet, owing to the stocks on hand and large importations still taking place and expected from Australia and elsewhere, it is feared the demand will not be sufficiently great to cause any material rise in price for some time to come. Under these circumstances the position of the mine is one of great anxiety, as it cannot be carried on as at present except under a heavy monthly loss, and which can only be met by calls on the shareholders; it will, therefore, be necesary at the special meeting, to be held after the business of the ordinary meeting is finished, for the shareholders to decide as to what course had better be pursued. The financial position of the company is as follows:—

| | | | |
|---|---|---|---|
| Balance in hand Feb. 7 last, per audited accounts | | | £ 417 5 5 |
| Received since— | | | |
| On account of tenth call | | | 38 7 6 |
| Tribute and royalty on tin sold by Capt. Old from leavings | | | 55 11 11 |
| Old materials and sundries from the mines | | | 85 10 9 |
| Tin sale, Feb. 25 | | | 790 13 9 |
| Tin sale, March 25 | | | 620 0 9 |
| | Total | | £2015 10 1 |
| And paid— | | | |
| Labour pay to Jan. 31 | | £986 5 5 | |
| Travelling expenses to the mines | | 9 0 0 | |
| Office rent, &c., six months | | 49 12 0 | |
| Sundries, postage, discount, &c | | 4 19 8 | 1049 17 1 |
| | Balance (cash and bills) | | £ 965 13 0 |
| The actual account stands this day as follows:— | | | |
| LIABILITIES—Labour pay to Feb. 28 | | | £1001 16 8 |
| | Merchants' bills | | 2873 17 2 |
| | Lords' dues, six months | | 267 14 5 |
| | Salaries, three months, and inspection of mines | | 92 6 0 |
| | Total | | £4235 14 3 |
| From which deduct— | | | |
| Cash and bills in hand, as above | | £915 13 0 | |
| Arrears of calls | | 54 3 9 | 1019 16 9 |
| | Leaves balance in hand against the mine this day | | £3215 17 6 |

to meet which a call is recommended of 10*s.* per share, payable forthwith, but a discount of 5 per cent. will be allowed on all calls paid on or before April 25.

Three courses appear to the committee open to the shareholders at the present time, and the committee will lay these before the meeting as briefly as possible, that the shareholders may be guided to a right conclusion in whatever resolutions may be passed this day. The first course is to cease working, and offer the machinery to the lord at a valuation, and in the event of his declining to take it to realise the assets and distribute the amount amongst the shareholders. The second course is to keep the mine in fork at a cost of about 500*l.* per month, to carry on no operations with the exception of two cross-cuts at the 174 and 184, west of Edwards's, to prove whether there is a more important lode standing north than at present seen, but neither of those courses do the committee recommend. The third course is that which was so successfully adopted in the year 1860, when the company were in greater difficulties than at present—to abandon, with the consent of the lord, all the present workings, draw up the pump, sell the machinery and pitwork, and with the proceeds attach flat-rods to the present engine at Edwards's shaft, and open up the western ground east and west from an old shaft sunk on the lode worked formerly by early adventurers, and only carried to a depth of about 70 fms. under adit. This course would enable us to try the western ground without further calls on the shareholders, and give a reasonable chance of obtaining again a paying mine, and particularly as this can be done at a small cost of outlay and future labour, and this is the course under the circumstances the committee recommend, and suggested by our own agents, Capt. Thomas, and others.

The report of the managers was then read, as follows:—

*March* 21.—During the past quarter we have been pushing on the development west of Edwards's shaft as fast as possible, in order to get clear of the influence of the cross-courses which we have had to contend with so many fathoms, and we are glad to say that we believe we are quite clear of cross-courses in both the 174 and 164, and into clean ground; but we regret to say, although the lode is regular and well-defined in both these levels, producing some good stones of tin, it is not of sufficient size to pay for working, yet it posseses everything congenial for the production of large quantities of tin, and our confidence is not at all shaken as to the ultimate result if fully developed. We have sunk a winze 4 fms. below the 174 fm. level, between the two limbs of the cross-course; the lode here is 18 in. wide, producing stamping work. We have been obliged to suspend the sinking of this winze, in consequence of too much water to contend with. From the underlie of the lode in the present bottom of the winze it must be north of the 184 fm. level, and we have just commenced a cross-cut north to intersect it, the driving of which is drawing off the water from the winze, which we think a favourable indication of the lode being met with by extending the cross-cut a few feet further. In the eastern part of the mine we are driving the 164 fm. level east, where we have a lode 2 ft. wide, worth 20*l.* per fathom; this level is opening up a large quantity of payable ground, and as the 152 or any of the shallower levels are not extended as far east by a great distance as the 164, the chances are that there is a great extent of tin ground standing above the 164 fm. level home to the present cross-course. A rise above the 174 fathom level, which is just behind the present 164 end, is up 6 fms., on a lode 2 ft. wide, worth 15*l.* per fathom. East of this rise we have two pitches working, both on a good lode, which go to prove that by extending the 164 fm. level over these pitches, and putting a rise through, a good extent of tin ground would be opened up between the 174 and 164 fm. levels, as well as above the 164. As both the 184 and 174 fm. levels have been driven to the great cross-course, and nothing found beyond, it is only a matter of time to exhaust the stopes we are now working, both under and over the 184 fm. level—say, six months from the present time is as much as we could reckon on, at about the present rate of returns. Our tribute department is doing quite as well as for some time past, but it must be understood that the great reduction in the price of tin has been the means of materially lessening our returns, as we were working ground that produced low-quality stuff, which would pay when tin was 20*l.* per ton higher than the present price, but such class will not pay now; hence, the returns have been affected.—S. HARRIS, J. JAMES.

*March* 23.—We have carefully considered the question of cost and returns in this case. All points of exploration should be abandoned, with all other dead work, and to make every reduction possible by way of cost we think it might be reduced to about 1000*l.* per month, and the returns would be about 14 tons (say) at 50*l.*—700*l.*—which would show a loss of 300*l.* per month, with but little chance of any improvement; such a course as this we could not advise unless the company wish to prolong the time to see the state of the tin market, &c., but, in case the company should feel disposed to abandon the old mine, we earnestly and faithfully advise the working of old Metal from Edwards's engine, an estimate of the cost of which has been sent to the office. It is well known that we have spent many thousands of pounds towards reaching this point, which would be all thrown away unless we further develope it, which can now be done without calling on the shareholders for money—say, sell 5000*l.* worth of machinery and materials, and we should have ample left for the requirements of the mine. In carrying out this we should have water to work the leavings and floor.—S. HARRIS, JOHN JAMES.

The report of Captain Josiah Thomas (of Dolcoath) was read, as follows:—

*March* 10.—Wheal Metal: I inspected this mine again yesterday, and afterwards had a conversation with the agents on the best mode of working for the future. Since my last inspection, in November, there has been no particular change in the ends west of Edwards's shaft, except in the 164 fm. level west, where the lode has of late improved in appearance, and produces some rich stones of tin. This end appears to be fairly beyond the influence of the cross-course. In the 174 fathom level west, which is a little behind the 164 fathom level, the lode is small, and not of much value. In the 184 they are at present driving north, with the hope of intersecting the principal part of the lode. The tin ground in the eastern part of the mine is showing signs of rather greater permanency than was expected. The lode in the stopes below the 174 and 184 is continuing of about the same value, and there is a good lode in a tribute pitch over the 174, near the eastern

end, where the lode is worth upwards of 30*l.* per fathom. The lode in the 162 fm. level east, which is about 15 fms. short of the pitch, is also improving, and is now worth 15*l.* per fathom. It seems probable, therefore, that more tin ground will be found to exist above the 162 than we formerly supposed, and it would be desirable so soon as convenient to drive the 152 or some other upper level in that direction. Looking at the poverty of the lode, however, as seen a little further east, in Sithney Wheal Metal, it cannot be expected that anything very durable will be found in this part of the mine; and, as remarked in my former report, the only place to look for a permanent mine is in the unexplored ground to the west of Edwards's. It must be remembered that this ground has not yet been tried to any great extent beyond the branches of the cross-course by which the lode has been disordered, and there are fair chances of meeting with an early improvement. Looking at the general direction of the deep levels west of Ivey's shaft, and at the difference in the size and underlie of the lode in the ends west of Edwards's, as compared with the lode in the eastern part of the mine, I think it is very possible that the main part of the lode may be standing further north, and it would be very desirable that a cross-cut should be driven north from the 174 end to the west of the cross-course, which would fully prove this point. In reference to the questions referred to in your letter, I beg to make the following remarks:—1. I doubt if the putting in of dams between Edwards's and Ivey's shafts would effectually prevent the greater part of the water from coming from one part of the mine to the other, there being no great length of levels without extensive workings on the lode.—2. If the water could be kept separate by dams I cannot see that anything could be gained by working the eastern part alone, for there is little or no chance of discovering a permanent mine in that direction; and if you were to work as fast as possible all the tin ground you have there discovered no profit could be made therefrom with the present price of tin. This would simply be working the mine to an end with no advantage to be gained.—3. From the best information I could obtain from the agents the mine can be kept drained by Ivey's and Edwards's engines at a cost of about 400*l.* per month; and if the 164 and 184 were to be driven west of Edward's, and the 174 north, with the cost in every department reduced to the lowest scale, the total loss could not, I think, be more than 600*l.* per month, and, perhaps, a little less. If you were to raise no tin at all, therefore you would actually be losing less than you are at present, whilst continuing the exploration of the western ground as effectually as now. If you were at the same time to work only the richest parts of the lode eastward, and reduce all surface cost by lessening hands and reducing wages as far as practicable, the loss might probably be reduced to less than 500*l.* a month. It seems almost a pity, however, to raise tin at the present low prices, and it will be for the committee to consider whether they will continue exploring the western ground, where I still think there are good chances of success, and stop raising tin for the present until better prices can be obtained.—JOSIAH THOMAS.

The report of Captain William Thomas (of Crenver and Wheal Abraham) was read, as follows:—

*March* 16.—I inspected on the 12th instant Wheal Metal portion of these mines, and beg to offer you the following as my report thereon:—Edwards's Shaft: The lode in the 164 west since it has passed through the cross-course has much improved in appearance, and is now yielding good stones of tin, and looking at the nature of the ground you may expect a further improvement shortly, as from appearances it is in settled ground, and has got beyond the influence of the cross-course. In the 174 west the lode is about 10 in. wide, producing good stones of tin; this end also appears to be in settled ground, and a good tin-bearing killas, such as Wheal Metal has been famous for. In each of these ends an improvement may daily be expected. The 184 west has been suspended, and the men are engaged in driving north to prove if any lode is in that direction; there are no signs of a lode in this end, but, judging from the water issuing from the south side of the level, I should say the lode driven on at the 174 was standing to the south of the end—the 184.—Metal Shaft, or Eastern part of the Mines: The lode in the stopes in the back and bottom of the 184 is yielding a great deal of tinstuff of moderate quality; there is a good bunch of tin in a tribute pitch in the back of the 174, worth from 25*l.* to 30*l.* per fathom, and there also appears to be a large quantity of tinstuff in the back of this level. The lode in the 162 east is worth from 10*l.* to 12*l.* per fathom; this end is not driven so far east by several fathoms as where the tin is in the back of the 174 fm. level. The ground in this direction has not been worked much for some time past, but there appears to be much more tin ground here than was generally supposed, still, looking at the unproductiveness of Sithney Wheal Metal Mine adjoining to the east, the chances are that discoveries in this direction will be very limited. The only tin ground you have now available is at the eastern part of the mines, but your only prospects for permanency must be from the west. I doubt if it would be practicable to keep back the western water by dams anywhere about Edwards's shaft, as it would percolate through the ground, but even if it could be done that would completely shut up the western part of the mines, where good results may be fairly expected. From the conversation I had with the agents I find they can have complete mastery of the water by working Edwards's and Ivey's engines, which would cost about 400*l.* per month. If the committee decide on working still, I should advise their working on the best part of the tin ground in the eastern part of the mines, also to prove the south part of the stopes in bottom of the 184 east, and drive the 174 and 164 west of Edwards's shaft, as there are very great chances of meeting with good results in that direction, as the old Wheal Metal part was not deeper that the 70 fm. level, and yet was very rich.—WM. THOMAS.

*March* 24.—In answer to your enquiries respecting my opinion of the old metal part of your sett, I beg to say that, looking at the shallowness of the mine, the productive character of the lode in the parts where previously worked, and the nature of the lode as seen in the levels driving west from Edwards's shaft, I should recommend your shareholders working this part of the sett to explore the lode in depth, as well as between the two shafts, for it could be drained to a considerable depth by means of a flat-rod attached to the present 60-in. engine without removal, and the explorations carried on at a much less cost than working your present eastern ground; besides which, if your shareholders should decline to pay calls to carry on the present operations, you would realise a large sum of money from the sale of your machinery, which could, if the shareholders thought proper, be applied to develope the western ground, where I consider they have a good speculation, and a capital chance of being rewarded for their outlay.—WILLIAM THOMAS.

The CHAIRMAN said if on previous occasions he had had to regret the absence of their esteemed chairman—Mr. Divett—he was sure they had double cause to-day, not only because Mr. Divett was a man of great practical mining experience, but also because he is by far the largest shareholder in the mine. Mr. Divett, however, had written to say that he is perfectly ready to acquiesce in any course the meeting might agree to adopt. The shareholders present had heard the report of the committee of management, that of their own agents, that of Capt. Josiah Thomas (the toller of Mr. Trelawney), and also that of Capt. William Thomas, who was asked to inspect the mine on behalf of the shareholders. He might mention that the two inspecting agents did not visit the mine the same day, and, therefore, their reports were perfectly independent of each other. It was a poor consolation that the shareholders in Great Wheal Vor should find themselves in the position—unfortunate position—in which most of the mines in Cornwall were at the present time, owing to various unfortunate circumstances, but mainly to the imports of Australia tin, which had reduced the price of that metal to a point at which few, if any, mines could be worked at a profit. Under these circumstances, it behoved the shareholders of Great Vor to consider their position, and to see if they could, if possible, retrieve the large outlay incurred. The report of the committee was based upon the best possible information, and pointed out that there were three course open for the adoption of the shareholders, but inasmuch as the first two would involve a serious loss, and one of them could not be carried out without making calls, he did not think it worth while to further refer to them, but with the consent of those present he would go a little into detail upon the other alternative. As an original shareholder, having been connected with the company for 22 years, he had passed through the various phases of the mine; and he might mention the company was, in the first instance, formed for the purpose of draining what was called Old Wheal Vor, and in the sett was included the property called Wheal Metal; but, perhaps, in order to prevent confusion, it would be more convenient to call Old Wheal Vor No. 1, Wheal Metal No. 2, and the western ground No. 3. The object for which the company was originally formed was attained by the draining of No. 1, but while the drainage was being carried on No. 2 gave them profits to the amount of 20,000*l.*, the whole of which was expended in the draining of No. 1. In 1860 the property they were now working, and which had since been so very rich, fell off materially, until the returns became reduced to 4 tons per month, the company involved in debt to the extent of 12,000*l.*, and the arrears of call were no less than 7000*l.* At that time they had to seriously consider their position, and, acting under the advice of experienced miners, it was agreed to do that which it was now proposed to do—instead of abandoning their property they faced their difficulties, abandoned all the unprofitable deep workings in the old mine, pulled up the pumps, pitwork, &c., sold the machinery, and with the proceeds worked No. 2, or Wheal Metal, which had, happily, proved so successful. The committee were backed by the shareholders, and in a very short time, by sinking the shaft for a few fathoms, the returns gradually increased from 4 to 70 tons of tin per month, the value of the lodes at the different points of operation amounting to 1100*l.* or 1200*l.* per fathom, and since then the mine had returned to the shareholders in dividend upwards of 88,000*l.*, and the lords had been paid 22,000*l.* in dues, of which Mr. Trelawney received 18,000*l.* The course proposed to-day is this—to abandon the whole of the old workings, offer the machinery to Mr. Trelawney at a valuation, and, in the event of his declining to take it, convert it into money, and with the proceeds attach flat-rods to the western engine, and drain No. 3, or the western ground, which the miners told them offered a good and reasonable chance of success. He ought, perhaps, to mention that the conditions of mines were not precisely the same now as in 1860, because the price of tin was then 75*l.* per ton, whereas now it was 50*l.*, and coal, which constitutes the main cost of working mines, was then 11s. 6d., instead of, as now, 18s. 6d. or 19s. per ton. Therefore, in looking at this question they had to ask themselves whether Australian tin, with which they had now to compete, could be imported into this country at such a price as to prevent the successful working of Cornish mines. They knew that discoveries had also been made in California, Mexico, Queensland, and Tasmania, but opinions differed somewhat as to whether Australia could import tin at present prices to pay, and if it could not they, of course, hoped to see better prices. There were, however, large shipments on the way, but it would take some little time before the effect of the falling off would be realised. The course the committee now proposed had this advantage—that it would give them time to see whether the tin market was likely to improve or not; and another paramount advantage was that it would not be necessary to call upon the shareholders for any further advances in the shape of calls. As regarded their present financial position, of course, a call of 10s. per share was unavoidable, and it was clearly in the interest of the shareholders it should be made to liquidate the debts. From all the committee had been able to ascertain, and from all the opinions expressed, there was certainly a fair and reasonable chance of success. (Hear, hear.) All mining was speculative, and it might so happen that, after all, they might fail, but, even under those circumstances, they would have the great satisfaction of knowing that they had not, as it were, parted with their property; if, however, any reliance could be placed—and he believed there could—upon the opinions of competent miners, such results would be realised as to at least somewhat retrieve their position. (Hear, hear.) The committee were one with the shareholders, and not one of the committee had sold a single share, but would stand or fall with the concern. He hoped that if the shareholders adopted the course shadowed forth they would again be well rewarded, and that the result of the present meeting would be the re-entry upon another career of prosperity.

Upon the proposition of Mr. HARVEY, seconded by Mr. MARSDEN, the accounts were passed and allowed, and the report received and adopted.

Upon the proposition of the CHAIRMAN, seconded by Mr. CHARLES WILLIAMS, a call of 10s. per share was made.

Mr. MARSDEN had much pleasure in proposing the re-election of the committee. Although the position of the company just now was not an agreeable one, everything that careful management could do had been done by the gentlemen whose names he was about to propose to be re-elected. It could not by any possibility be any reproach upon those gentlemen that the company's affairs were not in a more flourishing condition. (Hear, hear.) He had much pleasure in proposing the re-election of the committee of management.

Mr. STEPHENSON seconded the proposition, which was put and carried unanimously, the sum of 20 guineas being voted as their remuneration.

Mr. W. Moates was re-elected auditor.

A special meeting was then held to consider the course shadowed forth in the report,—Mr. J. O. HANSON in the chair.

The CHAIRMAN, in introducing the question, mentioned that Great Wheal Vor had paid its largest dividends when tin was only 45*l.* per ton, or 5*l.* lower than at the present moment. In 1860 the shareholders adopted a somewhat similar resolution to those now about to be submitted. The shareholders had confidence in the committee then, and passed the resolutions. He then read the resolutions, as follows:—

"That all operations to the east of Edward's shaft be forthwith discontinued, save so far as may be necessary or expedient for the purpose of realising such part of the machinery and materials on that part of the mine as may not be required for working the ground to the west of Edward's shaft, or for any other purpose or object arising upon or in consequence of the resolutions of this meeting, and that the future workings be confined to that part of the mine lying to the west of Edward's shaft."

"That the committee be and are hereby authorised, empowered, and directed to take all needful steps, and do all needful acts, to give effect to this resolution."

"That the committee be and are hereby authorised and expowered to take all such measures as they may think expedient for the purpose of realising, as far as practicable, so much of the plant, machinery, and materials as they may deem it unnecessary to retain; and either by sale in one lot or in various lots, and generally in such manner as they may think most advantageous, and to enter into such arrangements with the lord or with any other persons for that object as may appear expedient, or as they may think desirable."

"That the committee be and are hereby authorised and empowered to adjust, arrange, and settle in such manner as they may deem most expedient all questions and claims (if any) arising upon or in respect of the workings to be abandoned under the previous resolutions, and the realisation of the plant, machinery, and materials thereby directed."

Mr. R. W. CHILDS (the solicitor) explained that in 1860 he had the painful necessity of drawing up the resolutions then acted upon, and on this occasion almost a precisely similar conjuncture had occurred, the only difference being that in the resolutions they had to omit the provision for the abandonment of setts—now all the setts were worked as one.

Mr. MARSDEN asked if the recommendation of the committee was entirely in accordance with that of the agent?——The CHAIRMAN said the agent, Captain Harris, was present, and would answer that question himself.

Capt. HARRIS said his recommendation was that the old mine should be abandoned, and work the western ground.

Mr. MARSDEN said he would move that the recommendations of the committee be adopted, and he must say he considered the committee had exercised a very wise discretion in making the suggestion they had done. The special feature in the recommendation was that shareholders would not be troubled for calls.

The CHAIRMAN said, according to the valuation put upon the machinery and pitwork, ample funds would be provided to lay down the necessary flat-rods, and also work the mine for some years to come. They had had an estimate of the probable monthly cost, and instead of working as now at a very heavy loss the total cost would not exceed 150*l.* per month. He added that considering the way in which the property had been worked, and that a very large outlay had been incurred, and that Mr. Trelawney had realised from the company's workings in 14 years no less than about 18,000*l.*, he (the Chairman) thought the shareholders should be treated liberally. (Hear, hear.) He thought the dues should be relinquished—indeed it had now become a question whether the time had not arrived when Cornish lords for their own interest should not seriously consider the principle upon which dues were levied. At present the dues were levied upon the gross amount of tin raised, so that whether the mine worked at a profit or loss the lord got his dues, whereas if he received his dues from the realised profits he would be in the same boat as the shareholders. He merely threw this out as a suggestion for the consideration of the Cornish lords generally.

Upon the proposition of Mr. ALLEN, seconded by Mr. ORTON, it was unanimously resolved that the committee be requested to make immediate application to Mr. Trelawney for a reduction of the dues; and this meeting trusts that, under the present difficult circumstances connected with tin mining, Mr. Trelawney will assent to such application.

The resolutions were then put and carried unanimously.

A unanimous vote of thanks was passed to the Chairman and committee of management.

The CHAIRMAN, in acknowledging the vote, said that, on behalf of his colleagues and himself, he begged to thank the shareholders for their renewed mark of confidence. Such confidence was an example for other companies, which if more followed would tend to more successful management, because companies could not go on without the shareholders had confidence in those to whom they entrusted the management of their affairs. All he could say was that the committee of Great Vor would continue to do all they possibly could to promote the best interests of their shareholders. (Hear, hear.)——The meeting then separated.

## PROVIDENCE MINES, LELANT.

At a meeting of the adventurers held at the mine, on Wednesday, the accounts showed:—Dr.: 12 weeks' wages due to January 30, 3002*l.* 9s. 6d; carriage, 86*l.* 14s. 6d.; merchants' bills to the end of January (including bank interest and commission), 593*l.* 14s. 7d.; coals, 601*l.* 13s. 4d.; Trelyon and Providence United cost, 111*l.* 2s. 8d.; making total costs, 4395*l.* 14s. 9d. Credit: Tin sales, 55½ tons (average price per ton 57*l.* 9s.), sold for 3197*l.* 16s. 4d.; deducted from the costs, as above, shows a loss on the twelve weeks' working of 1197*l.* 18s. 5d. The debit balance brought from last account (after deducting the call then made, &c.), 1167*l.* 6s. 11d., leaves a total balance now due from the shareholders of 2365*l.* 5s. 4d. In order to liquidate this balance it was resolved that a call be made of 2*l.* per share, making 2240*l.*

The agents' report stated that the 75 east, on the north lode, is worth 30*l.* per fathom. At the 75 fm. level 12 men are working the end and stopes, which are valued at 60*l.* per fathom. These stopes have produced in the past month about 10 tons of tin. At Hawke's shaft the lode is worth 16*l.* per fathom, with prospects of still further improvement. The 26 is worth 20*l.* per fathom. The 14 west by four men, driving at 4*l.* per fathom, valued at 15*l.* per fathom. This part of the mine is opening up very satisfactorily. There are now employed 102 men on tribute at an average of 13s. 4d. in 1*l.*, and 50*l.* per ton for tin. The estimated returns for the next three months are 55 or 60 tons. The agents' report concludes by stating that after six months further working in opening up Hawke's shaft (should the prospects continue as at present) the returns may then be estimated to fully meet the expenditure, even with tin ores at present prices.

There was a large attendance of shareholders, about 40 being present. An animated discussion took place on the position of the mine, and what steps could be judiciously adopted to meet existing circumstances and enable the mine to be kept working on such a scale as would be most advantageous to the shareholders. It was at length decided that the agents of the mine be continued as previously, but that their salaries be reduced all through, beginning with the purser downwards, and other curtailments the agents stated had been already carried out on the surface, as well as the wages of the miners underground; all had been most carefully revised and reduced towards "meeting the times."

It was also resolved by the meeting that the shareholders express their deep regret at the continued illness of their respected purser, Mr. Higgs; they learn with much sorrow that it is not probable he will be enabled to immediately resume his duties. It was further resolved that a committee of seven of the shareholders be appointed—Messrs. Bolitho, Mr. Harvey (Kennall Company), Mr. T. Field, Mr. E. Heard, Mr. Bamfield, and Mr. J. M. Kernick: that they shall consult with the purser on the future working of the mine, and that they confer with the lords on the subject of a continued cessation of the dues, and on the question of the necessary cutwork explorations which may be considered as most desirable.——Mr. BAMFIELD proposed the health of the purser, Mr. Higgs; a toast which was most warmly received by all present. Mr. Higgs's long association with the Providence Mines, and the indefatigable zeal he had always displayed in watching and promoting the interests of the shareholders, were referred to in most kind and appreciative terms by not only Mr. Bamfield, but Messrs Harvey, Heard, Wilkinson, Wellington, and many others who were present at the meeting, and hopes expressed that he might soon again with improved health resume his usual routine of duties.

One of the special toasts given was "A better price for tin," with which was included the names of two gentlemen present—Mr. R. Wellington and Mr. T. Field—who were called upon as great authorities on the all important and vital question for Cornwall, to give their views on the present prospects of the tin market.——Mr. FIELD said, with reference to better prices, he wished to his heart he could now give them, but the fact is they (the tin smelters) have just now no control over the market; they were now beat by the Australian supplies, but for this circumstance tin might now possibly be as high as 90*l.* per ton. He considered the consumption of tin was gradually increasing, and the supplies from divers sources were likewise increasing far too much. He really feared Cornwall must yet suffer very much, but he would venture to express his doubts whether Australia could send supplies to European markets which would be remunerative to them (the producers) at existing quotations. He would strongly urge the greatest economy possible now in working tin mines in Cornwall. He regarded these mines—Providence—as a most important source of industry for this the Lelant district, and he would earnestly hope that all would pull well together, and thus endeavour to tide over this trying period, for he really hoped ere long to see much better times.——Mr. WELLINGTON said he would fully endorse the views already expressed by Mr. Field, and what he had said about Australia, and how far the quantities would be kept up from that source it was quite impossible to form any opinion. He (Mr. Wellington) had just received private information from Australia, giving reports of the very rich tin lodes found there, some of which were 8 to 9 ft. wide, of which 6 in. was solid tin. He believed Australia would become an enormous tin-producing country. He would, however, on no consideration look too much on the dark side of the picture. He hoped things would soon resume a brighter aspect—(hear, hear) —but just now Cornish mining was under a great cloud. He had been engaged in the tin trade for 53 years, and he had seen a great many ups and downs, but he never before witnessed so trying a period as the present one.

Capt. HOLLOW, the principal managing agent of Providence Mines, gave his views to the meeting respecting the position and prospects of the mine, and said how both himself and the other agents were deeply anxious to exert themselves to the utmost to carry the mine through all the existing difficulties. He believed if they could only get through the ensuing six months, and carry out some important explorations they had now in progress, particularly the intersecting of Hawke's lode (where he believed there was a great store of riches), he had the greatest confidence that they should soon see themselves placed in a much more satisfactory position than they were at the present time. (Hear, hear.)

In reply to a question by Capt. N. Pentreath, Capt. HOLLOW said he was sure the miners in their employ were quite willing to work at reduced wages, and thus help as far as was in their power to keep the mine afloat; but they (the miners) would rather submit to anything than go back to the adoption of the "Five-weeks month system." Capt. Hollow also explained the extent of the workings which had been carried out in these mines, which are now 150 fms. deep below adit, which is another 50 fms. from surface, making total depth 200 fms. The workings are about half-a-mile long in the largest levels; and there are three miles of railroad underground. There are five steam-engines employed, and these mines have been working for nearly 50 years.

Mr. EDWARD TRYTHALL, the secretary (who acted in the absence of the purser), presented an admirably arranged synopsis of the accounts of the mine, which showed that during the time the mine has been at work tin and copper ores have been sold of the value of 568,670*l.*; 93 dividends have been declared, of 10*l.*, 12s. 6d. per each 1120th share, making a total sum of profits paid the adventurers 113,820*l.* The calls made on the shareholders on first opening up the mine amounted to 13,714*l.*, whilst the lords have received in dues 21,835*l.* The total amount paid in wages and in the other incidental expenses of working the mines from the commencement have been 448,336*l.*

## SICILIAN SULPHUR MINES COMPANY.

The ordinary general meeting of shareholders was held at the London Tavern, Bishopsgate, on Wednesday,

Mr. ALEXANDER in the chair.

Mr. EDMUND ETLINGER (the secretary) read the notice convening the meeting, and the reports of the directors and engineer, with statement of accounts, were laid on the table.

The CHAIRMAN expressed regret that, as the 19 shareholders necessary to form a quorum were not present, the meeting would not be competent to pass any resolutions, but stated that he would, nevertheless, make a few remarks which might be interesting. He observed that the main features of the report were that the directors found it necessary to make a call of 1*l.* per share, and that they were not in a position to declare a dividend. Some profit had been made, but this was in the shape of unrealised stock, and was, therefore, unavailable for distribution. The directors much regretted this, but the cause of it was explained in the reports. There had been a succession of heavy rains, resulting in a general flooding of the district, and the water getting into the mines. He was glad to say that Mr. Shelford stated this to be a very unusual occurrence. The consequence, however, was that there had been much expenditure both in labour and money in endeavouring to drain the mines. Both the mining operations and the fusion had been interfered with, and they had even been unable to carry down the manufactured sulphur to the coast. It would be seen that the causes of the diminution were not in the control of the directors, and he believed those causes to be of a very exceptional nature, although on three occasions in three months during the past season the water had got through the fissures into the mines. This had not, however, affected the sulphur-bearing value of their property, and had not prevented the realisation of some profit. He was, however, bound to add that only that morning he had received a letter from the mines, stating that the storms had been renewed. He then read the letter from Mr. Gill, in which it was stated that the general damage to the sulphur mines had been so great that there must be a reduction in the production, and consequently a rise in price, the benefit of which would be fully felt by the company. When the directors heard of the storms, they thought it best at once to send out Mr. Shelford to see what damage had been done, and devise the means of repairing it. Mr. Shelford was now present, and he would refer to him for any information the shareholders might require.

The accounts showed a profit of 858*l.* 18s. 10d for the half-year ending Dec. 31. This profit is at the rate of 5 per cent. per annum on the paid-up capital, and a dividend at the rate of 10 per cent. per annum having been paid for the first half of 1873, the profits of the entire year have been at the rate of 7½ per cent. per annum.

The report of Mr. Shelford (Shelford and Robinson) stated that the property of the company consists of lands and mines in some of the best known sulphur districts of Sicily, leased for 40 years, and having a total area of about 610 acres, known to be rich in sulphur. These lands are grouped together, so that one or more mines may be formed upon each group, as if it were one lease. The groups at present held are four in number, and are called Grasta, Sinatra, Rocca Tinebra, and Gibellini. Of these, Grasta is in the province of Caltanisetta, near the village of Delia, with Licata for its seaport; and the remainder are in the province of Girgenti, near the town of Rocalmuto, with Girgenti for their seaport. After describing the actual position of each mine he refers to more general questions connected with the enterprise, and, in doing so to his report of April, 1870, remarked that it must be borne in mind that all the mines shown to him before that report was made were similar to Gibellini Rosa—that is, they were worked near the surface in Sicilian fashion, and were almost, or entirely, free from water; and it was such mines that he contemplated arranging for the company to take and work while preparations were making for the more difficult undertakings, such as Grasta and Sinatra, and an improved system of working, which would of necessity take time to develope. Again, it was not then thought possible to erect and maintain machinery without foreign workmen, and it was contemplated to drive adits for draining the water out of the mines rather than apply steam-pumps; but a better knowledge of the country has shown that Sicilians can work engines, and a more intimate acquaintance with the sulphur deposits proves that they cannot be relied upon to continue to such an extent as the geologists best acquainted with the subject seemed to believe. As a consequence, the proposed adits have been so far abandoned, and, therefore, the whole system of intended working changed, the intention being to increase the cost of working, but to economise capital in the long run; and, as a further consequence, the company has suffered from mining risk which was not estimated, because it could not be, and which would certainly have been less if the simpler mines had been taken first. Nor has it yet been found possible to improve the existing mode of fusion by calcorene to the extent of which it is capable, but Mr. Gill has, at his own expense, carried on experiments continuously on a large scale, and has so far succeeded as to leave little doubt that the company will shortly profit by his results—at least, to some extent; and, whatever the amount, it will be an addition to the net profit. Neither have the railways, which have been promised to Sicilians since Garibaldi's time, been completed in the sulphur districts, though they are now in construction, and have lately progressed more rapidly. They will certainly diminish the cost of transport, and will make it more regular, which is almost as important; but it is possible that, when opened, they will lower the price of brimstone. He thinks it more likely, however, that the sulphur mining proprietors will take the full benefit, and in that case the company, owing to its long leases, will participate in it. The company, he continues, has not undertaken to work a speculative mine, but has embarked in the long-established and profitable sulphur industry of Sicily; and if it would succeed it must, in his opinion, follow out the policy which he has always had in view—to keep a number of mines at work in various stages of development, so as to distribute both the mining risks and the cost of management. The experience already gained points to the desirability of working a number of small mines favourably circumstanced, rather than a few large ones, unless their character is well known. The difficulty is to get them. In matter of detail, he thinks better results may be obtained by—1. Regulating the Sicilian method of underground working.—2. Obtaining more sulphur from the ore by an improved mode of fusion.—3. Reducing the cost of raising the ore and water to the lowest point.—4. Improving the means of transport where possible. And to these points Mr. Gill's special attention is directed. Lastly, he is of opinion that whatever disappointment the shareholders may feel at the delay in obtaining a return upon the chpital expended on Sinatra, they have a valuable property, and their immediate prospects are very good at Grasta Nuova and Gibellini.

Mr. VIAN remarked that as to sulphur deposits he had always supposed that the regularity of the deposit was almost beyond question, but from Mr. Shelford's report it appeared that the sulphur cannot be relied upon, and that in Sinatra the sulphur had been cut off; he would also like to learn the probable production of the mines.

Mr. SHELFORD stated that when he was before in Sicily he had found the roads tolerably good, and the railways working well, but on this occasion he found the railways carried away, and even the road bridges, some of them very substantial structures between Palermo and the mines, were washed away also. He explained that over the sulphur deposits there occurred masses of gypsum with enormous fissures, through which the streams of the country frequently lose themselves. It was, however, only after exceptional rains that there was any difficulty in the sulphur mines from water. Grasta was close to one of these places, yet such an occurrence as that which they were now suffering from had occurred but once before. The water may have done them much damage, but they must remember that Grasta was but one of their mines. Very little was known to geologists as to the mode of occurrence of sulphur, but Capellini, the professor of geology at the University of Bologna, was of opinion that it occurred in stratified beds somewhat like coal, and his own examination of at least 100 sulphur mines to a great extent confirmed that view. Matura, the Government mining engineer, in his work on Sicilian sulphur

shows a section of a seam of sulphur precisely as a seam of coal, and entertains the idea that although it may be faulted it may be found again in the same way; but for his own part he was not inclined to go so far as this, for he believed they were given to dying out. Indeed, the consideration of their mode of formation would support this view. They were certainly due to internal springs, and they found the deposit to consist of alternate laminations of ore and sulphur often many metres thick in the aggregate, the whole apparently thrown up like the mud volcanoes. In this case the extent to which the deposits spread out would of course be limited by the contour of the surface. The question of water was a serious one, but he believed their pumping-power was ample even for floods. He remarked that the industry in which they were engaged was no small matter, as it gave employment to 40,000, and he believed that if they did not make a profit it was their own fault.

After some further conversation the CHAIRMAN declared the meeting to stand adjourned for a week, remarking that as he did not think any others were likely to be present he did not see that the shareholders need trouble themselves to attend.

## SILVER PLUME MINING COMPANY.

A general meeting of shareholders was held at the offices, Great Winchester-street, on Wednesday,—Mr. JOHN CARR in the chair.

Mr. F. ORCHARD (the secretary) read the notice convening the meeting.

The report of the directors stated that since the last meeting they have been assisted by the committee of shareholders, who have co-operated with them, and Mr. J. V. Smedley, one of the number, has since joined the board. The miners ceased working in July, owing to their pay being in arrear, and that the vendors of the property, through their agent, Mr. Jacob Snider, have brought a suit against the company for a moiety of the proceeds of sale of ore. The defence is that the company is bound only to account to the vendors for one-half of the net profits, as shown in the balance sheets, up to 25,000*l.*, the fact being that instead of a profit, the company have made a loss up to this date, as is shown by the balance-sheets. The effort to raise additional capital did not succeed. The second and modified proposal to raise a further sum for continuing the work and defending the suit, resulted in the acquisition of (say) 882*l.*, by issue of shares on terms equal to 4*s.* per 1*l.* share, or 441*l.* in shares, leaving a balance of 3099 shares not issued. With the fund thus raised, the directors have paid a proportion of the miners' claims for wages, some of the pressing debts, and made provision for the present expenses of the lawsuit in Colorado, but no means have been found for meeting the very urgent overdue claim of their banker in Colorado, which debt bears a high rate of interest. The funds are nearly exhausted, and do not admit of the outlay for labour required to fully develope the property, but a drift is being driven east on the fifth level with fair expectation of finding good ore. The prospects are good, but the hope is not yet realised. The company's agent has made agreements with the miners to work portions of the property on tribute. The carefully arranged terms secure development of the mine, and save expense of dead work, costing the company 75 per cent. of ore acquired, and securing 25 per cent. for current expenses. Some of these leases have proved profitable to the lessees, whilst they help to prove the mine, and have demonstrated the point so frequently brought forward, that the solid and continuous ore lies in depth; the renewal of these leases, or otherwise, will receive fullest consideration as the terms mature.

The CHAIRMAN moved that the report and balance-sheet be received and adopted. Referring to the accounts, he stated that the law charges, amounting to 62*l.*, were not likely to recur, but the item for interest was the most objectionable, and caused the directors more annoyance than even the lawsuit. In settlement of the banker's claim they had offered to give a mortgage of the property as security, upon the condition that no annoyance should arise or any step be taken for the succeeding six months.—Dr. SMART seconded the proposition.

The motion was put, and carried unanimously.

A vote of thanks to the Chairman, directors, and auditor closed the proceedings.

'For remainder of Meetings see to-day's Journal.]

## FOREIGN MINING AND METALLURGY.

Business in copper has remained very quiet at Paris. Chilian in bars has made 82*l.*; ditto in ingots, 88*l.*; tough English, 88*l.*; and pure Corocoro minerals, 84*l.* per ton. At Havre the tendency has been somewhat better. At Marseilles there have been comparatively few transactions, and prices have remained without variation, except for old English copper for sheathing, which has fallen to 52*l.* per ton. In Germany the transactions of the last fortnight have shown that the requirements of consumption are increasing; speculators are accordingly exhibiting a less reserved attitude. There has been another sensible fall in tin quotations at Paris; Banca, delivered at Havre or Paris, has made 106*l.*; Straits ditto, 100*l.*; and English, delivered at Havre or Rouen, 104*l.* per ton. At Marseilles, tin quotations have continued to fall, the arrival of minerals from Australia having been of some importance. The approaching sale in Holland may, however, restore, at any rate, temporary firmness to prices. The Rotterdam tin market has been extremely quiet; Banca has made 57¼ fls. to 58 fls., as well for disposeable as for future delivery. Consumers have purchased regularly, and have profited from the fall in rates. The German tin markets have been generally weak. Lead quotations have been declining at Paris, transactions having been rather restricted; the general quotation has been 22*l.* per ton, whatever may be the place of delivery. Lead has been quiet at Marseilles. The German lead markets have remained without change, but the pretensions of holders have become less marked. Zinc has obtained rather better prices at Paris, but Marseilles quotations have exhibited little change.

The coal season is now definitely regarded as lost in France, even by the coalowners themselves. Intelligent mixtures of secondary and best coal were induced by the late extraordinary advance in prices, and this system appears likely now to continue, to the detriment of superior qualities. In the basin of the Nord the state of affairs remains almost precisely the same, and there is no important fact to notice. Prices are now being fixed somewhat more positively, and there is less margin between the rates asked by coalowners and those agreed to by purchasers. The fall in quotations, although checked for a time, will not improbably be renewed.

A slight revival which had appeared in the Belgian iron trade is maintained, and has even become more decided. At Liége, merchants' iron has been in rather better demand, and it has been announced that one of the principal works proposes to carry its tariff from 8*l.* 8*s.* to 8*l.* 16*s.* per ton. Pig has, however, experienced no improvement, being weak at 3*l.* 12*s.* per ton for refining, and 4*l.* 16*s.* per ton for casting. Upon the whole, the hopes of the Belgian iron trade are reviving, and not without reason, as this is the period of the year for large orders for rails, as well as orders for girders for building purposes. The large railway companies are also giving out renewal orders for the approaching season. The present is also the usual period of the year at which some improvement in affairs is observable. The imports of iron of all kinds into Belgium presented a slight increase last year, having amounted to 181,000 tons, against 157,000 tons in 1872. The augmentation occurred principally under the head of rough pig and old iron. The exports of iron of all kinds from Belgium presented a sensible diminution, having been 231,000 tons against 292,000 tons in 1872. The exports of pig fell off last year 22,000 tons; those of rails, 11,000 tons; those of plates, 6000 tons; those of rolled iron, 18,000 tons; and those of nails, 4000 tons. The diminution in the exports of rails from Belgium last year occurred almost entirely in the exports to Turkey and the United States; this arose from the increased competition of the Zollverein. A royal decree just issued provides that the working of minerals may be leased in Belgium by public adjudication for a term not exceeding 40 years.

If several serious indications of reviving industrial activity in France induce hopes of an early return of orders, it must be confessed that at present scarcely any commissions of importance are being received by the French forges and ironworks. Prices have been maintained with tolerable firmness. Thus, in the Haute-Marne merchants' iron has been quoted at 9*l.* 4*s.* per ton, while refining pig has made 3*l.* 4*s.* to 3*l.* 8*s.* per ton. Upon the whole, it can scarcely be said that the French iron markets have experienced scarcely any appreciable change.

The Belgian coal trade has been, upon the whole, neither better nor worse during the past few days, but still there have been, perhaps, fewer complaints of depression. Stocks have been increasing rather slowly in the Belgian basins, because production has been somewhat restricted, while the consumption has not diminished, but has, perhaps, somewhat improved. Deliveries by boats have been almost *nil*, and those by railway have been reduced, as has been indicated by an almost general decline in the receipts of all the railway networks. There cannot be said to be, upon the whole, any general revival in affairs. The attention of coalowners is just at present principally directed to the best means of securing a reduction in miners' wages, which are still 30 or 40 per cent. above the old rates, notwithstanding the great fall which the selling prices of coal have experienced. The imports of coal into Belgium last year were three times as large as in 1872, the figures for last year having been 659,000 tons, as compared with 211,000 tons in 1872. The Ruhr basin, last year, poured into Belgium more than 300,000 tons in competition with the indigenous coal production of Belgium. The imports of coal into Belgium from France, last year, were 107,000 tons, as compared with 96,000 tons in 1872. The imports from England rose from 92,000 tons in 1872 to 217,000 tons in 1873. The imports from the Zollverein present quite a startling progress, having risen from 20,000 tons in 1872 to 324,000 tons in 1873. The exports of coal from Belgium declined last year, having receded from 4,608,000 tons in 1872 (a year of great prosperity for the Belgian coal trade) to 4,171,000 tons in 1873. The exports of Belgian coal to France fell off 200,000 tons last year; those to the Low Countries declined from 390,000 tons in 1872 to 124,000 tons in 1873; and the Zollverein only took 31,000 tons instead of 63,000 tons. On the other hand, the exports of coke from Belgium increased last year to 802,000 tons, as compared with 749,000 tons in 1872. Some indication of the causes of the present depression in the Belgian coal trade may be found in these figures.

## FOREIGN MINES.

EBERHARDT AND AURORA.—Telegram: "Commenced hauling the ore on the 19th inst. Will start mill on the 1st prox."

MINERAL HILL.—Mr. Oakes, superintendent, March 2: There is nothing new to report from the mines. The ore raised is, as before, 50 tons of an average grade of $40 per ton. The weather has been unusually severe this week, and we have been obliged to bring the ore down from the mines on sleighs, it being impossible to use the quartz wagon.

COLORADO TERRIBLE LODE.—March 2: The weather is fine, and we are progressing steadily with the building of the jiggers. I have ordered the crusher and rolls, and are now preparing the wood foundations ready to receive them on arrival. Ore delivery, 14 tons of second-class to Stewart's. Yield of ore for the month of February, 211 tons of all grades.—Inside of Mine: In No. 1 stope, 5th level, the vein is 1 to 9 in., and ore of excellent quality. In No. 5 stope, 5th level, the vein is 2 ft. wide, of mixed ore, a fair proportion of which is first class. In No. 6 stope, 5th level, average vein 2 in., of good quality. In the 5th level drift west the vein is 4 in., of solid ore, and has greatly improved in value since my last; we hope to get first-class from here. The vein in winze sinking below the 5th level is 2 in. wide, of fair quality; winze sunk 17½ ft. The 6th level drift is 132 ft. west of shaft; the main vein is 4 inches wide, of blende and heavy galena ore. I have never seen the mine looking better than at present.

HOLCOMBE VALLEY.—C. R. Bennet, Feb. 21: We have now abundance of water for milling purposes, and are now running steadily right long. We have started running drifts from both sides of the incline No. 2, at a depth of about 55 ft. from the surface, and also stoping out the quartz. The west drift is in about 60 ft., showing a lead face of 1½ ft. and high grade rock. The east drift is in about 30 ft., and, the ledge at this point having diminished in size, we have started stoping out the quartz, which is of a fine quality and high gaade. We have had a heavy snowstorm within the last day or two, completely blocking up our waggon-road, so that considerable delay may be caused in the arrival of the pump and set of new shoes and dies for the mortar. From the appearance and accumulation of the amalgam on the plates in the battery, the general belief is that the production of bullion will fully come up to our expectationss. Mr. Haley purposes writing you on the first of the month, giving a full description of the progress of operations, with value of rock.

BLUE TENT CONSOLIDATED (Gold).—C. W. Tozer, March 2: I have to report that since the date of my last, wherein I informed you of the completion of repairs and the resumption of washing, all has been moving along at the mine most favourably. We have had another severe snow storm, occasioning some inconvenience, but no delay. On the whole, we are grateful for the storms, so repeated and severe, for each adds to the certainty of a water season protracted unusually late into the fall. We are now actively engaged preparing for washing at South Yuba claim. Anticipating the easy completion of Bedrock Tunnel, we have about 15 ft. yet to run, and the shaft to raise 27 ft. The rock, I am sorry to say, is yet hard, though somewhat better, and the completion of the tunnel is consequently delayed a month longer than we calculated when work was commenced. We can, however, now see the "beginning of the end," and hope in 30 days from this date to be washing at South Yuba in full blast. We can there, I think, calculate with certainty upon enjoying the use of water at this point for five months, and perhaps for six months. I shall probably not have made a full "clean-up" before the 15th inst. I purpose to run our flumes and undercurrents as long as it is safe to run them without repairing, because it is expensive of time and money to clean-up, and also because when flumes and other saving appliances are well charged with silver, and the silver well charged with gold, they are in better condition to save more than when newly paved and charged with silver. We cleaned up the lower portion of flume marked No. 10 on the map recently forwarded you by Mr. Bone one week ago to-day, taking about $1000; this was the lower end of the said flume, there being some 5000 ft. of flume above or nearer the bank, which, of course, catches the bulk of gold. I can only say we deemed the amount taken up a good indication of results when we shall clean up the flumes above this piece, the undercurrents and flumes below, &c. We shall go on this cleaning up from time to time as it becomes necessary—a piece of flumes here, an undercurrent there, &c., until we have once cleaned all. The aggregate I shall announce to you as clean-up, No. 1, &c. We cannot at the Tent, where our flumes are so numerous, proceed as at Sweetland—for instance, when the washing is all done through one main flume. Make a stated clean-up (say) every 30 or 40 days. You will remember the first of our washing was done to remove the obstruction of ground that was overlying the tunnel run last fall to give us more secure opening from this washing. I do not expect to realise more than expenses. We then had our flumes to lay down up to face of banks, &c., so that we cannot say that washing, where we expect to realise large profits, was begun more than 10 days ago—in other words, the last 10 days has washed more money into our flumes than all the previous washing of the season. These hindrances and delays are unavoidable incidents to beginning a new system or plan of operations. Mr. Bone will soon be in London, and he can, and doubtless will, explain the situation better than I can by letter. Meantime, I can only assure you again, which is the main thing, that washing is going vigorously forward, and we shall be able to give a good account of ourselves in due time.

EXCHEQUER (Gold and Silver).—Mr. L. Chalmers, March 2: Notwithstanding that I turned off every stopcock in the mill before winter commenced a good many of the pipes were frozen to bursting in places where no stopcocks had been placed to draw off the water, notwithstanding my particular orders to the engineer to have the pipes so laid that no water would remain to freeze. It was Saturday, therefore, before we got to regular running, the engineers being occupied nearly a week in putting in new pipes, which I luckily had beside me. The frost has been very intense, but now no amount of freezing can do us damage. I have turned the exhaust of the engine into the water tank, so we have always hot water in the pipes, and we have cased all the outside pipes with boxes filled with sawdust. I expect to finish my run this week. I am anxious to get down some 60 tons at the Exchequer Mine, and 30 or 40 at I. X. L., while mill running. I let a contract to clear the road by to-day, but the contractors, after getting half way to the I. X. L., threw it up, which I regret, as it would have paid to have it done. I sent the team up as far as they had finished shovelling on Thursday, but further the horses could not go. You will be glad to hear that we are getting softer rock in the shaft. We are now down 149 feet, and entering the casing of the lode. On Jan. 1, I stated in my annual that the shaft would cut the lode at the 148. I shall know by next Saturday what it is likely to be at this level. The lode in the north drift is all of 6 ft. wide, and again improving, and will continue to do so now for, at any rate, 80 feet. The pay streak on the hanging wall is 1½ foot wide.

I. X. L. (Gold and Silver).—Mr. L. Chalmers, March 5: The lode in the north drift has very much improved in the 10 feet we drove last week. My foreman thinks it will pay for milling, and is saving it. The men from the south drift are timbering the north. The accompanying longitudinal section of the I. X. L. lode will show you that every foot we drive north on the 200 ft. level brings us nearer the rich ore schute they had in the upper tunnel. I have a few tons of ore from the old works at the Exchequer Mill, which I shall have milled next week. Snow falling heavily.

CHICAGO (Silver).—E. J. Dowlen, March: Furnace Diary Reports: At the mine the work is generally progressing. The Chicago shaft bottom looks well; a bar of galena has formed in the red sand, and the orey ground exhibits a tendency to widen on all sides; the dip is as vertical as before. A fair body of ore has been developed in the Rambler, and the ground so opened that the ear can be brought to its face; we shall get a good quantity of ore out here at very small expense. The track will be laid by the end of the week into the left-hand drift, where the best body of ore I have yet seen in the mine is found. We hope to commence stoping it down by the 1st prox. It is almost impossible to describe the state of the road in the canyon; the snow is from 3 ft. to 10 ft. deep. The great economical advantage of the wire ropeway is now more than ever apparent; a neighbouring mine has a strong force of men opening out the road at considerable daily expense, from which we are happily saved by our aerial method of transit.

CAPE COPPER.—The directors have advices, per African, from the Ookiep and Spectakel Mines:—Returns: Yield for January, Ookiep, 625 tons of 33 per cent. Spectakel, 34 tons of 29 per cent. Railway returns not received. Transport of ore to railway 1060 tons; 515 tons of ore have been put forward for sale by public ticketing on April 14.

BENSBERG.—C. Craze, March 21: Victoria Shaft: The part of the lode in the south side of this shaft is producing good lead ore, which we are saving for dressing, and I am pleased to say it is freer from pyrites than the galena found nearer the surface.—New Shaft: The part of the lode being carried in this shaft is worth about 30*l.* per fathom. We have met with water here, which I am afraid will prevent our sinking much deeper before the Victoria shaft is sunk deep enough to drive east under this ground, to drain it. The lode in the level west of opencast is not so good as last reported; it is now producing 2½ tons of lead per fathom, with a large quantity of pyrites. There is no change in the east level. The north-east stope in open-cast continues to yield good galena, mixed with pyrites, and the lode presents a strong and masterly appearance. In all the other stopes there has been a falling off in the quality of the stuff; this is easily understood, as we are getting too far south of the lode; hence, it is very important that we should sink our shafts and drive levels as fast as possible, in order to lay open ground for stoping, so as to be able to keep up returns.

MENZENBERG.—R. K. Roskilley, March 21: Dickin's Engine-Shaft: During the week scarcely any change has taken place in the sinking of this shaft below the 30 lachter level, except having met with a branch about 6 in. wide, composed of spar and stones of copper ore, which is issuing an increased quantity of water; this branch is underlaying towards the lode reported upon in my former reports, and it will in depth unite with the same. The shaft is now down about 2 fms. below the 30, and the sinking of it is being proceeded with satisfactorily.

LUSITANIAN.—March 10: Palhal: The lode has not been taken down in Taylor's engine shaft, below the 170: it is from 10 to 12 ft. wide, composed of quartz, some stones of which are coloured with cobalt. The 170 plat, at Taylor's, is complete, and the sollar in. The 95 winze, below the 160, west of Taylor's, is going down in a lode 3 ft. wide, composed of a softish quartz; a rise is being put up to meet this winze from the 170, the lode in it being similar to that in the winze.—Levels on Basto's Lode: In the 170, west of Taylor's, the lode is 3½ ft wide, composed of quartz. In the 160 west the lode is now yielding 2¼ tons per fathom. The lode in the 150 east is 4 ft. wide, composed of quartz and stones of ore. In the 150 west the lode is now being cut off with the slide, and the end is suspended. The men employed in the 140, east of River shrft, are now engaged in cutting a top plat in the shaft in this level. The lode in the 140, west of Taylor's, west of the slide lode, is 6 to 8 in. wide, giving good stones of ore. In the 130, east of River shaft, the lode is 4 fi. wide, composed of loose quartz. In the 120 east the lode is 1 ft. wide, of schist and flookan. In the 110 east the lode is 2 ft. wide, composed of schist and quartz, and at times stones of copper ore. The lode is small in the 90 east, and without ore to value. In the 80 the lode is 1½ ft. wide, composed of quartz and schist. In the 70 the lode is also 1½ ft. wide, and composed of good-looking quartz, containing lead, copper ore, and perhaps some cobalt, yielding ½ ton of mineral per fathom. In the 20 east the lode is 1½ foot wide, made up of quartz, stained with cobalt. The lode in the 70, west of Taylor's, and west of the slide lode, is 6 in. wide, of dry schist. The branch in the 38, west of Perez' shaft, is worth fully ½ ton of ore per fathom. The slide lode in the 130, north-east of Taylor's, is 1½ foot wide, of schistose and flookan. There is no change to report in the adit cross-cut.—Carvalhal: The great lode in the 50, east of incline shaft, is 1 ft. wide, composed of flookan. The caunter lode in the 20, west of incline shaft, is worth ½ ton of good lead per fathom. The Valley lode, in the top adit south, east of River Caima, is 1 ft. wide, composed of quartz and country, with spots of lead. The stope below the 40, on the great lode, yields ½ ton per fathom.

ALAMILLOS.—March 11: In the 60, west of San Rafael's shaft, the lode continues large, and yields good stones of ore. The 50, west of San Francisco shaft, yields ½ ton per fathom; this is a large and promising lode, with good stones of lead. In the 50, east of La Magdalena shaft, the men are put to drive a cross-cut north. The lode in the 85, east of Taylor's engine-shaft, is large, consisting of calcareous spar, quartz, and stones of ore. In the 85, west of Taylor's engine shaft, the ground is hard for driving, and lode unproductive. The lode in the 50, east of San Victor shaft, continues small and unproductive. In the 50, west of San Victor, we have the slide in the bottom of the end. The lode in the 30, west of San Carlos shaft, contains stones of ore in the bottom of the end. The 20, west of Addis's cross-cut, yields ¾ ton of ore per fathom; the lode is small and hard for driving. The 50, east of Judd's engine-shaft, is worth 1 ton per fathom; this is improving, and will shortly be holed to Lucio's winze. The ground in the 60, east of Judd's, is very hard, and the lode small and poor. There is no improvement in the 40, enst of air shaft. The 30, east of air shaft, yield ½ ton per fathom; the lode is very wide, and spotted throughout with lead. The 50, east of Crosby's shaft, continues unproductive. The lode in the 50, west of Crosby's cross-cut, is compact and regular, yielding ¾ ton of ore per fathom. In the 30, east of Swaffield sh ft, the men are put to drive a cross-cut south to intersect a part of the lode standing in that direction.—Shafts and Winzes: In Judd's engine shaft, sinking below the 60, the ground is very hard; the men made good progress in the past month in sinking in San Carlos shaft below the 40. Caro's winze, below the 70, yields ½ ton per fathom; the lode is somewhat improved, and at the same time easier for sinking. The men are getting on slowly in sinking Alvarez' winze below the 70. Fernandez' winze, below the 20, produces 2 tons per fathom; the lode has declined somewhat in value, and has become harder for sinking. Melchor's winze, below the 25, yields 1½ ton per fathom; this is going down in a very good shoot of ore. Lucio's winze, below the 40, is worth ½ ton per fathow; the lode is again improving in this sink. Miguel's winze is worth 1½ ton per fm.; this is situated west of La Magdalena shaft, and is being sunk below the 65 in a strong and productive lode. The usual rate of raisings was kept up during the past month, and the stopes have not undergone any change worthy of notice. The works at surface are going on satisfactorily, and the machinery is in very good working condition. We estimate the raisings for March at 225 tons.

FORTUNA.—March 11: Canada Incosa: The lode in the 110, west of Henty's shaft, is small and unproductive. No improvement has taken place in the 100, west of Judd's. In the 80, south of Henty's cross cut, the ground is very bad; nothing of valne has been met with. The 80, west of Kennedy's shaft, yields ½ ton per fathom. The lode is large and spotted with lead, and of a very promising appearance. The lode in the 90, west of Lowndes' shaft, continues unproductive. The 90, east of Lowndes' shaft, yields ½ ton per fathom; the lode is open, with good stones of ore, and of a very promising appearance. The lode in the 80, east of Caro's shaft, is disarranged and unproductive. The men are now put to cross-cut north, to prove a branch standing in that direction. In Belmonte's winze the men have been occupied during the past month in cutting down the north side, were there are several small branches.—Los Salidos Mine: The lode in the 110, west of San Carlos shaft, is a little smaller than it was. In the 90, west of San Carlos shaft, the lode is small, containing good stones of ore. The 120, east of Morris's engine-shaft, yields ½ ton per fathom. This is a large and strong lode, with good stones of ore in the bottom of the level. The lode in the 110, east of Cox's shaft, is disarranged and unproductive. The 100, east of San Miguel's shaft, yields 2 tons of ore per fathom. This is still opening out good ore ground. The lode in the 35, east of Swaffield's shaft, is small, compact, and regular, yielding 1 ton of ore per fathom. The 35, west of Palgrave's, is worth 3 tons of ore per fathom. This is a firm, compact, and strong lode. The 45, west of Palgrave's, yields 1 ton per fathom. The lode is disarranged, and split into several small branches. The 45, east of Palgrave's, is worth 3 tons per fathom. This has greatly improved, and is opening a good length of rich ore ground. The lode in the 25, east of air-shaft, is small and poor.—Shafts and Winzes: Garrido's winze, below the 110, yields ½ ton per fathom. The lode is large and strong. Morato's winze, below the 90, is worth 2 tons per fathom. The lode is much improved, and has a very promising appearance. Toledo's winze, below the 100, is going down in a very fine shoot of ore, worth 3 tons per fathom. The lode in Adolfo's winze, below the 45, is firm, compact, and regular, yielding 2 tons per fathom. The tribute department yielded very well in the past month, and the stopes have not undergone any change worthy of notice. The works at surface are going on very regularly, and the machinery in both mines is in good working order. We estimate the raisings for March at 350 tons.

LINARES.—March 11: The lode in the 85, driving west of Crosby's shaft, is not so large and open as it was. The 85 cross-cut, south of Crosby,s shaft, has intersected the south lode, which has a promising appearance, and contains good stones of ore. The lode in the 75, west of Crosby's, has fallen off in value. The 75, west of San Francisco shaft, is worth 1½ ton per fathom: the lode is compact and regular, but small. The 75, east of San Francisco, yields ¾ ton per fm.; the lode is improving a little. The 65, west of this shaft, yields ½ ton per fm.; the men are put to cross-cut south, where we expect to find a better part of the lode. The lode in the 55, west of San Francisco, is very compact and regular, producing ½ ton per fathom. The 55, east of San Francisco, is worth 1 ton per fm.; this is opening good tribute ground.—Shafts and Winzes: At Warne's engine-shaft, sinking below the 85, the men made moderate progress in the past month. No. 187 winze, below the 55, yields 1½ ton per fathom; this is going down in a good shoot of ore. The returns were kept up very well in the past month, and the stopes are yielding moderately at present. The ordinary surface works are going on very regularly, and the machinery is in good condition. We estimate the raisings for March at 125 tons.—Los Quinientos Mine: In the 80, west of Taylor's engine-shaft, the ground is hard, and the lode small and poor. The 65, west of Taylor's, yields ½ ton per fathom: the lode became open, with a good appearance a short time since, but it has fallen off again. The lode in the 55, west of Cox's shaft, is split into small and unproductive branches. In the 45, west of Cox's shaft, the lode is small and irregular, yielding ½ ton per fathom. The 80, east of Taylor's shaft, contains a small vein, consisting of quartz and a few spots of lead. The lode in the 65, east of Taylor's, continues unproductive. In the 55, east of Addis's, the ground is hard, and the the lode poor. The lode in the 55, west of San Carlos shaft, is very strong and open, consisting chiefly of calcareous spar and lead ore, yielding of the latter ¾ ton per fathom. The 65, west of San Carlos, produces ½ ton per fm.: this also is a wide and open lode, but has slightly declined in value. The lode in the 65, east of San Carlos shaft, has improved a little in the past fortnight, and now yields ¾ ton per fathom. The 55, east of San Carlos, yields 1¼ ton per fathom; the lode has changed unfavourably in the past few days. The 45, east of Judd's, produces 1 ton per fathom; the lode is very firm and regular, and the ground moderately easy for driving through. The lode in the 32, east of Judd's, is large, and of a promising appearance, yielding 1 ton of ore per fathom.—Shafts and Winzes: The men are getting on well in sinking Judd's shaft below the 45. At Addis's shaft, sinking below the 55, the ground is difficult to sink in. In Ancien's winze, below the 45, the lode is small and poor. The lode in Pedro's winze, sinking below the 32, is large, and yields good stones of ore. Ortega's winze, sinking below the 55, contains a wide and powerful lode, consisting of calcareous spar and stones of lead. We have commenced sinking San Carlos shaft from the 65 to an 80 fm. level.

[For remainder of Foreign Mines, see to-day's Journal.]

EMMA.—"BEARING" EMMA STOCK.—The letter of our London correspondent, which appears in this issue of the *Herald*, with the circular embodied in it, gives the Utah public a little more of the latest chapter on Emma manipulation. The London *Mining Journal*, of February 14, publishes the same circular, with a number of letters not very complimentary to the directors of the Emma Company, and editorially comments upon it. The gentleman who called at the Emma office in London, as we learn by correspondence, was Mr. William Ward, who owns a large number of shares of the stock; yet, instead of being shown the cablegram which was to affect his fortune, perhaps $50,000 in a day, he was insolently refused, and actually ordered to leave the office. Mr. Anderson, who had returned from New York, had met Mr. Attwood in that city some time before, yet the result of their conference on Emma affairs and its bearings upon the company's shares has been studiously kept from the shareholders. It was given out in this city that Mr. Attwood had resigned; but he returned from New York still in charge, and since then, as before, everything is kept as profound a mystery as possible concerning the mine. Why was there a necessity for Mr. Anderson and Mr. Attwood to meet in New York? Why did not Mr. Anderson come to Utah, as in October, 1872, and make a personal examination of the property, as he then did? Or if such a course was not necessary and he was limited for time, why was Mr. Attwood not able to communicate and receive all the necessary information by mail?

This is a matter in which not merely the shareholders but the public are interested. The London circular says Mr. Attwood reports the mine looking very bad, and the vein in the bottom pinching out. If he sent such a cablegram, we ask him why has he gone to the heavy expense of ordering another pump with double the capacity of the one set to work some time ago? We have the intelligence that he has done so from an Emma shareholder, who claims to be in possession of positive information on the subject. Mr. Attwood may telegraph to London, but he has not learned how to keep all his men prisoners with iron masks, and men will talk. They tell a different story to that which the London boards says he tells. The ore taken from the mine and sold disproves statements previously credited to him. The whole course of the Emma board directors, for some months, has appeared to be a huge "Bearing" operation with the view to rob the shareholders, and it would seem that Mr. Attwood is dealing the game. Situated as they are, it is neither stock gambling nor stock speculating, but if this surmise be correct, it is as much robbery as though they were to blow open the safes of the shareholders and extract the money from them. A plain statement of facts, without mystery or secrecy, is what the shareholders and the public desire and demand. Without it, the course of the board of directors and of their manager, is open to the gravest charges that may be made against them.—*Salt Lake Herald*, March 6.

THE EMMA.—A private letter from Salt Lake, dated Feb. 10, informs us that sales of Emma ore to date, from the new strike in the deepest workings, are as follows:—25 tons, $29,000: 100 tons, 230 ozs. per ton, $38,000: 100 tons of third-class ore, 230 ozs. per ton, $25,000; 170 tons of fourth-class, 132 ozs. per ton, $15,000. Total value of the 325 tons, $107,000. Good for Emma.—*Mining and Scientific Press*, San Francisco, Feb. 21.

LONDON GENERAL OMNIBUS COMPANY.—Traffic receipts for the week ending March 22, 9768*l.* 18*s.* 5*d.*

## "BURLEIGH" MACHINE VERSUS HAND DRILLING.

*Extract from Paper read before the British Association at Bradford, 1873, on Brain's System of Mining and Shafting Sinking at the Drybrook Iron Mines, Forest of Dean, using the "Burleigh" Rock Drilling and Air Compressing Machinery:*

**(Shaft 10 ft. Diameter.)**

### COST OF SHAFT BY HAND

During a Fortnight.

| | | | |
|---|---|---|---|
| Sinkers, twelve, 12 days each, at 5s. 6d. | £39 | 12 | 0 |
| Water Fillers, three, 12 days each, at 3s. 6d. | 6 | 6 | 0 |
| Blasting powder | 1 | 2 | 0 |
| Total | £47 | 0 | 0 |

**Depth Sunk 3 yards—Cost per yard . . £15 13s. 4d.**

### COST OF SHAFT BY MACHINE

During a Fortnight.

| | | | |
|---|---|---|---|
| Sinkers, three, 12 days each, at 5s. 9d. | £10 | 7 | 0 |
| Labourers, six, 12 days each, at 3s. 6d. | 12 | 12 | 0 |
| Engine Stokers, two, 12 days each, at 2s. 6d. | 3 | 0 | 0 |
| Dynamite, 60 lbs., at 2s. | 6 | 0 | 0 |
| Electric Fuses (Brain's) 20 per day, at say 6d. each | 6 | 0 | 0 |
| Coal for Air Compressing Engine, 12 tons small, at 10s. | 6 | 0 | 0 |
| Oil for engines | 0 | 5 | 0 |
| Total | £44 | 4 | 0 |

**Depth Sunk 5 yards—Cost per yard . . £8 16s. 9d.**

THE ABOVE STATEMENT REPRESENTS WHAT IS NOW BEING DONE AT THE ABOVE MINE.

### ADDITIONAL TESTIMONY.

(COPY.)

*The Weardale Iron and Coal Company, viâ Darlington, Sept. 6th, 1873.*

Messrs. T. BROWN & Co., 96, Newgate Street, London, E.C.

DEAR SIRS,—I have much pleasure in informing you that the Rock Drill and High-pressure Boiler, with which you supplied us, are both working extremely well.

I am, yours truly,

(For the Weardale Iron and Coal Company, Limited),

J. R. CRONE.

(COPY.)

*Crossfield Iron Ore Works, Crossfield Moor Row, viâ Carnforth, Sept. 8th, 1873.*

DEAR SIRS,—In reply to yours of 2nd inst., I am sorry I have not time to go into the comparative results of hand labour in sinking with that of the work done by your "Burleigh Drill." All I can say is, that for the last few months it has been giving me every satisfaction, and there is a marked difference in the progress of our sinking operations.

I am, yours truly,

JOHN MAIN.


## THE HIGHEST PRIZE
## AND ONLY MEDAL "FOR PROGRESS"
FOR DIRECT-ACTING

# STEAM PUMPING ENGINES,

FOR MINING AND GENERAL PURPOSES, WAS

AWARDED BY THE INTERNATIONAL JURY, AT VIENNA, 1873,


TO

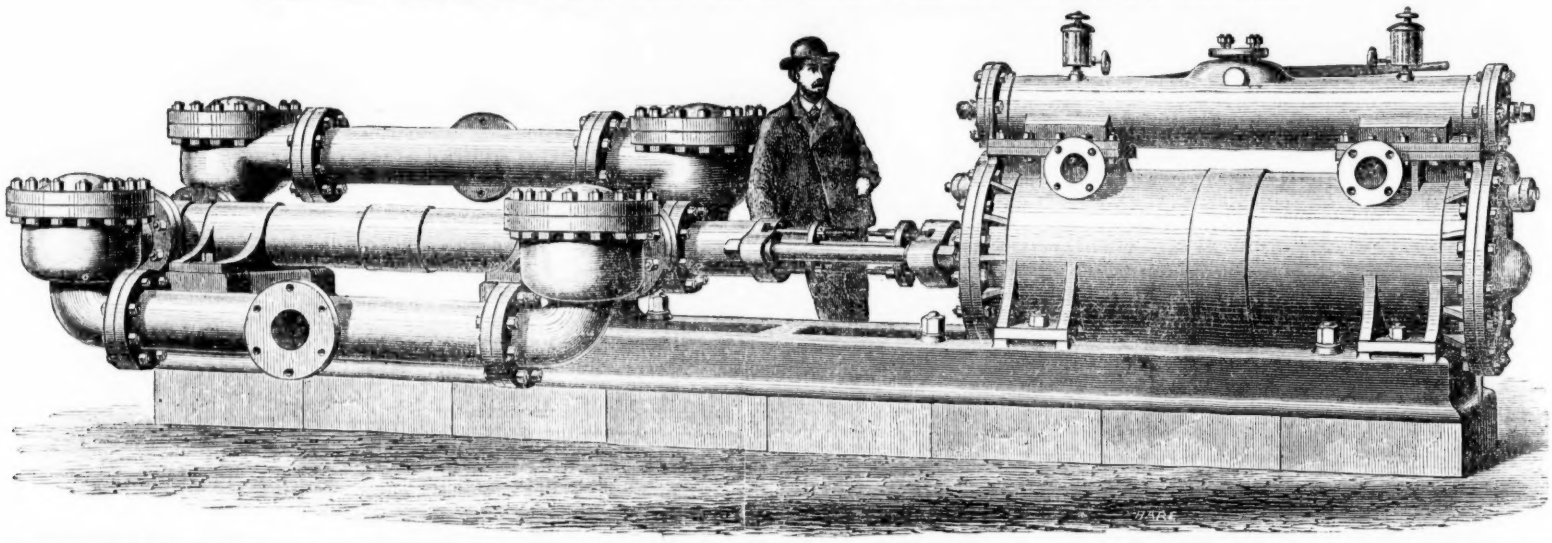
# TANGYE BROTHERS AND HOLMAN, LONDON,

FOR

# "THE SPECIAL"

# DIRECT-ACTING STEAM PUMPS.

OVER 3000 IN USE, AGGREGATING 25,000 HORSE-POWER. 200 SIZES AND COMBINATIONS OF THESE PUMPS ARE NOW MADE.
ALL ARE DOUBLE-ACTING, AND HAVE SHORT PISTONS AND LONG STROKES.



**The "SPECIAL" Direct-acting Steam Pumping Engines require no costly Engine Houses or massive foundations, no repetition of Plunger Lifts, ponderous Connecting Rods, or complication of Pitwork, and allow a clear shaft for hauling purposes.**

THE **"SPECIAL"** DIRECT-ACTING STEAM PUMPING ENGINE is the most simple, powerful, economical, and successful appliance for deep mine draining and general purposes of pumping ever practically developed, and the first cost is very moderate compared with the method of raising water from great depths by a series of 40 or 50 fathom lifts. They are all fitted with Holman's Patent Buffer Valves, which are reliable and durable under 1500 feet head. Any number of these Engines can be placed side by side, to work in conjunction or separately as desired, thereby multiplying the work of one Pump to any extent.

**The "Special" Steam Pumping Engines are in use at the following among many other Collieries:—**

| | Pumps supplied. | | Pumps supplied. | | Pumps supplied. | | Pumps supplied. | | Pumps supplied. | | Pumps supplied. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Acomb | 1 | Caprington | 1 | Gnoll | 1 | Newton Cap | 1 | Shilbottle | 2 | Wardley | 1 |
| Adelaide | 4 | Castle Eden | 4 | Haswell | 4 | Nerquis | 1 | Shildon | 3 | Washington | 1 |
| Ashington | 1 | Chell | 1 | Inkerman | 2 | North Bitchburn | 1 | Shotton | 3 | Waterhouses | 1 |
| Bell Brothers | 6 | Cornsay | 4 | Kilton Iron Company | 2 | North Brancepeth | 1 | Silverdale | 1 | Wearmouth | 1 |
| Black Fell | 1 | Darfield Main | 3 | Lambton | 2 | North Seaton | 1 | South Brenwell | 5 | Waterloo | 1 |
| Black Prince | 1 | Denend | 1 | Lintz | 3 | Old Flockton | 2 | St. John's | 2 | West Bitchburn | 1 |
| Bolckow, Vaughan, and Co. | 11 | Dinnington | 2 | Llancarach | 2 | Oakenshaw | 1 | Strafford | 2 | West Thornley | 1 |
| Brancepeth | 1 | Donisthorpe | 1 | Llynvi | 1 | Old Thornley | 1 | Stanrigg | 1 | West Yorkshire | 1 |
| Brandon | 1 | Drumgray | 1 | Lochore | 4 | Pease's West | 1 | Sutton Heath | 1 | West Lanes | 1 |
| Briggs, H., Son and Co. | 1 | Dunfermline | 1 | Longhurst | 1 | Pegswood | 1 | Thornley | 3 | Whitefield | 1 |
| Brinkeburn | 1 | Duffryn | 1 | Lumley Thicks | 1 | Pelton | 1 | Tindale | 2 | Whitworth | 6 |
| Brownrigg | 1 | Eckington | 1 | Marley Hill | 1 | Pontyclere | 2 | Trimdon Grange | 1 | Widdrington | 5 |
| Bretby | 2 | Etherley | 4 | Milkwell Burn | 2 | Queensferry | 2 | Tudhoe | 9 | Worsbro' Dale | 2 |
| Butterknowle | 3 | Fell | 3 | New Brancepeth | 3 | Railey Fell | 1 | Tudhoe Grange | 2 | Worcester | 4 |
| Cambois | 1 | Findon Hill | 3 | New Copley | 3 | Seaton Delaval | 2 | Victoria | 1 | Workington | 4 |
| Cambusnethan | 1 | George | 1 | Newton | 4 | Shire Oaks | 2 | Vobster and Mells | 2 | | |

**PARTICULARS OF THE "SPECIAL" STEAM PUMPING ENGINES SUITABLE FOR HIGH LIFTS IN MINES.**

| | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Diameter of Steam Cylinder ..... | Inches | 6 | 7 | 8 | 10 | 12 | 7 | 8 | 10 | 12 | 14 | 16 | 8 | 10 | 12 | 14 | 16 | 18 | 21 | 10 | 12 | 14 | 16 |
| Diameter of Water Cylinder ..... | Inches | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 |
| Length of Stroke ..... | Inches | 24 | 24 | 24 | 36 | 36 | 24 | 24 | 24 | 36 | 36 | 48 | 24 | 24 | 36 | 36 | 48 | 48 | 48 | 24 | 24 | 36 | 36 |
| Gallons per hour, approximate ..... | | 2,200 | 2,200 | 2,200 | 2,200 | 2,200 | 3,900 | 3,900 | 3,900 | 3,900 | 3,900 | 3,900 | 6,100 | 6,100 | 6,100 | 6,100 | 6,100 | 6,100 | 6,100 | 8,800 | 8,800 | 8,800 | 8,800 |
| Height in feet to which water can be raised with 30 lbs. pressure per square inch of steam, or compressed air, at pump ..... | | 180 | 244 | 319 | 500 | 720 | 137 | 180 | 281 | 405 | 551 | 720 | 115 | 180 | 259 | 352 | 461 | 581 | 793 | 124 | 180 | 247 | 320 |
| Ditto | ditto | at 40 lbs. | 240 | 325 | 425 | 665 | 960 | 183 | 240 | 375 | 540 | 735 | 960 | 153 | 240 | 345 | 470 | 615 | 775 | 1,058 | 166 | 240 | 330 | 426 |
| Ditto | ditto | at 50 lbs. | 300 | 406 | 531 | 831 | 1,200 | 228 | 300 | 468 | 675 | 918 | 1,200 | 191 | 300 | 431 | 587 | 768 | 968 | 1,322 | 207 | 300 | 412 | 532 |

**PARTICULARS, &c.**—*Continued.*

| | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Diameter of Steam Cylinder ..... | Inches | 18 | 21 | 24 | 26 | 12 | 14 | 16 | 18 | 21 | 24 | 26 | 30 | 14 | 16 | 18 | 21 | 24 | 26 | 30 | 32 | 16 | 18 |
| Diameter of Water Cylinder ..... | Inches | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 9 | 9 |
| Length of Stroke ..... | Inches | 36 | 48 | 48 | 72 | 24 | 24 | 36 | 36 | 48 | 48 | 72 | 24 | 24 | 36 | 48 | 48 | 48 | 48 | 48 | 72 | 24 | 36 |
| Gallons per hour, approximate ..... | | 8,800 | 8,800 | 8,800 | 8,800 | 11,900 | 11,900 | 11,900 | 11,900 | 11,900 | 11,900 | 11,900 | 11,900 | 15,660 | 15,660 | 15,660 | 15,660 | 15,660 | 15,660 | 15,660 | 15,660 | 19,800 | 19,800 |
| Height in feet to which water can be raised with 30 lbs. pressure per square inch of steam, or compressed air, at pump ..... | | 405 | 555 | 720 | 855 | 135 | 180 | 234 | 300 | 405 | 525 | 620 | 825 | 137 | 180 | 225 | 310 | 405 | 475 | 630 | 720 | 142 | 180 |
| Ditto | ditto | at 40 lbs. | 540 | 740 | 960 | 1,140 | 180 | 240 | 312 | 400 | 540 | 700 | 827 | 1,100 | 183 | 240 | 300 | 413 | 540 | 633 | 840 | 960 | 190 | 240 |
| Ditto | ditto | at 50 lbs. | 675 | 925 | 1,200 | 1,425 | 225 | 300 | 390 | 500 | 675 | 875 | 1,033 | 1,375 | 228 | 300 | 375 | 516 | 675 | 791 | 1,050 | 1,200 | 237 | 300 |

**PARTICULARS, &c.**—*Continued.*

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Diameter of Steam Cylinder ..... | Inches | 21 | 24 | 26 | 30 | 32 | 18 | 21 | 24 | 26 | 30 | 32 | 18 | 21 | 24 | 26 | 30 | 32 | 21 | 24 | 26 | 30 | 32 |
| Diameter of Water Cylinder ..... | Inches | 9 | 9 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 10 | 10 | 12 | 12 | 12 | 12 | 12 | 12 | 14 | 14 | 14 | 14 | 14 |
| Length of Stroke ..... | Inches | 36 | 48 | 48 | 48 | 72 | 36 | 36 | 48 | 48 | 48 | 72 | 36 | 36 | 36 | 48 | 48 | 72 | 36 | 36 | 48 | 48 | 72 |
| Gallons per hour, approximate ..... | | 19,800 | 19,800 | 19,800 | 19,800 | 19,800 | 24,400 | 24,400 | 24,400 | 24,400 | 24,400 | 24,400 | 35,240 | 35,240 | 35,240 | 35,240 | 35,240 | 35,240 | 47,960 | 47,960 | 47,960 | 47,960 | 47,960 |
| Height in feet to which water can be raised with 30 lbs. pressure per square inch of steam, or compressed air, at pump ..... | | 244 | 320 | 375 | 500 | 568 | 146 | 198 | 258 | 303 | 405 | 468 | 101 | 137 | 180 | 211 | 281 | 320 | 101 | 127 | 150 | 206 | 224 |
| Ditto | ditto | at 40 lbs. | 326 | 427 | 500 | 665 | 758 | 195 | 264 | 345 | 405 | 540 | 625 | 135 | 183 | 240 | 282 | 375 | 426 | 135 | 170 | 200 | 275 | 313 |
| Ditto | ditto | at 50 lbs. | 407 | 533 | 625 | 831 | 947 | 243 | 330 | 431 | 506 | 675 | 781 | 168 | 228 | 300 | 352 | 468 | 532 | 168 | 212 | 250 | 343 | 391 |

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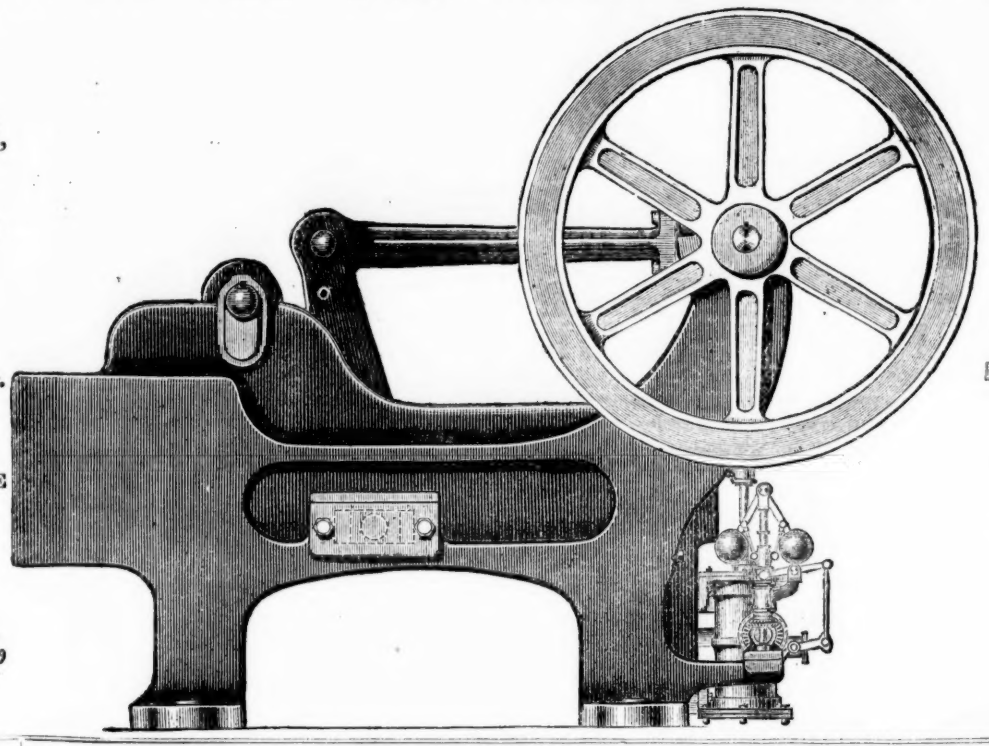

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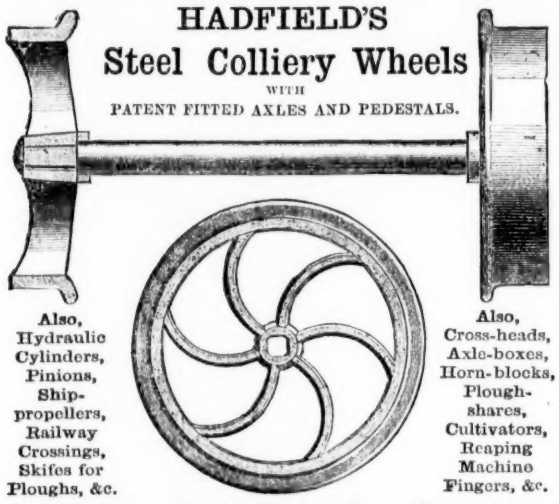

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